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HANDBOOK

FOR

WIVES AND MOTHERS

IN

INDIA

DR. MILDRED STALEY

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IN INDIA.

BY

MILDRED E. STALEY, M.B., L.M.,

Physician in Charge, Lady Aitchison Hospital for Women, Lahore.

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PREFACE.

THE subject of this book is principally the prevention of disease in mothers and their children during their sojourn in a tropical country, and it embodies the result of many years' experience in India.

I have ventured to write it, trusting that it may be of use not only to Wives and Mothers, but also to nurses and others, who in these countries are oft-times left alone to face difficulties and responsibilities for which their training has not sufficed to prepare them.

Some compromise was necessary in consideration of these two classes of readers, but as far as possible, stress has been laid upon general practical methods of preventing and meeting disease, rather than upon the employment of drugs and medicaments.

Prevention is at all times better than cure, and the mother who first of all cherishes her own good gifts of health, and then carefully regulates her child's life from birth onwards, will have done much towards conquering the tendency to early collapse and death so striking among the foreign children in a tropical country.

I have not attempted, within the circumscribed limits allowed me, to deal fully with the diseases of children ; there are several excellent books devoted entirely to that subject, which can be consulted if necessary.

Many other omissions there are, necessitated by the exigences of space.

It remains to acknowledge my indebtedness to those who have helped me in this labour, and to certain authors, Müller, Goodhart, Eustace, Smith, and others, to the recent editions of whose books reference has been made from time to time.

My thanks are also due to others whose books and teaching have influenced my own mind and practice, and who may therefore have been unconsciously reproduced in the pages of this book.

MILDRED E. STALEY, M.B., L.M.

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HANDBOOK FOR WIVES AND MOTHERS IN INDIA.

PART I.

General Hygiene.

CHAPTER I.

The Home and its Surroundings—The Dwelling-house.

In India, occupying as it does part of the tropical zone from the Equator to the north parallels 23° 28′ 40″, the conditions of life are necessarily very different from those found in Europe. Great variations of climate and temperature are found in this vast country. It is only by a careful study of these conditions, from the health point of view, that the inexperienced housekeeper can maintain her household in health and comfort, and prevent serious disease from entering the home.

THE DWELLING-HOUSE.

One can see in every native town and village a striking object lesson in what constitutes an insanitary habitation. There, large populations are crammed into dark closely packed ill-contrived dwellings, built around evil smelling courtyards, in which a privy and a refuse heap figure largely. The narrow dark streets admit little air to the house, and what does reach them is badly polluted by the open drains stopped

up with refuse, or by earthenware receptacles sunk in the plinth of the house to catch and retain house-slops and refuse.

There the malarial mosquito breeds and flourishes with impunity, the germs causing dysentery, cholera, and enteric find a ready home, and the resistant power of the inhabitant is fatally lowered.

The European will, therefore, do well to choose a house situated as far as possible away from any native bazaar or huts. The house should stand on sloping ground and as high as possible ; on masonry arches if the soil is a wet one, or at least well above the level of the canal, or river course, for irrigation. There should be no stagnant pools of water, or tanks, near the house.

When building a house, a rainproof course should be laid in the middle of the plinth to prevent damp from rising to the floors. Beyond the walls, a layer of bricks or beaten ***kunkar*** should be laid on the ground around the basement of the house, with a slope down to an open drain or water-course. This should run into the main drains of the road, to carry off the rain water from the roof and house and so prevent it from sinking into the foundations.

Any undergrowth or *jungle* near the house should be cleared away, and gravel or short grass laid down. There should be high verandahs running round three sides of the house—east, south and west, with holes in their roofs to allow of ventilation.

Bath and house water must never be allowed to run out of a hole in the wall and sink into the soil outside the bath-room. It should be drained off with the roof water, or else carefully removed in buckets

directly from the bath-room, and carried to a distant part of the garden before being thrown on the soil.

The *drainage* from the house, kitchen and garden, etc., should all be carried by cement drains into the main road drains. If this is impossible, a deep well or pit should be dug at a distance from the house, and filled up with pieces of rock and stone for 12 feet. The house and garden drains can lead into this well, and these can do no harm, since the fluids will sink into the deepest layers of the soil.

Now let us turn to the house itself.

First of all, it is well that the young wife should realize from the beginning that the making of a happy healthful home in India means heavier responsibilities and more anxious cares than would ever have been hers in England. She will need as skilled a judgment and as great a courage and self-control as any required from her husband in his professional work, though directed to different ends. Indeed, most men in India are so over-burdened with work and anxieties, that many home matters not usually considered in the province of the wife will have to be decided and arranged by her, if she would take her share in the building up of the Empire and of the Race.

The Rooms in the house should be light, airy and well-ventilated. If a dark house is the only one obtainable, more light and air can be ensured by having a few swing windows (*roshandâns*) let into the walls above the line of the verandahs. This can be done at small cost, and enables the hot vitiated air to escape from the rooms as it never could do otherwise. These upper windows should never be closed altogether even in the hot weather on the plains.

The practice of sealing up the whole house from the outside air from early morning is an evil one. The air in the rooms soon gets vitiated, and encourages the drowsiness, languor and anæmia so common among those whose work does not take them much out of doors. *Hot air does not injure the system as much as impure air does.*

If likely to remain for some time in a house, it is well worth while to have glazed Italian tiles laid down round each room for a distance of 2—3 feet from the walls; these are now manufactured in India and are not expensive. The piece of matting or oil-cloth in the centre of the room can then be frequently rolled up and removed, and the tiles should daily be wiped over with a damp cloth.

The new fashion of papering the walls is a pernicious one. Papers even in England are found to absorb and preserve infectious germs for years, and in India where germ diseases are so common they should be altogether eschewed. If white-wash is objected to, "Distemper" in all art shades is now available and can be quite easily applied. If put on to cemented walls, these can be wiped over with a damp cloth, and this should be done regularly once a month. When white-wash or colour-washes are used, the old layer should be scraped off the walls every year before the new one is applied, and this should also be done after any infectious disease has occurred in the house.

During the hot weather all superfluous rugs, hangings and curtains should be removed from the room. The sweeper should never be allowed to sweep the mattings, durries or rugs in a room. All floor rugs should be carried out and shaken in the open air, and china

mattings wiped over with a damp cloth. All furniture should be merely wiped over with slightly damp duster to remove the dust. The flicking with a dry duster as native servants like to do, only distributes the dust and germs, but does not remove them from the room.

The Bath-rooms attached to each of the bed-rooms should have stone or good cement floors, with merely oil-cloth or a washing mat laid upon them—not matting.

There should be free ventilation by windows from the outside, and a bottle of phenyle should be kept in each bath-room to keep the commodes and floor sweet and clean.

In place of earthenware pans to store cold water in, every bath-room should be provided with iron or white enamelled buckets with lids for this purpose. Earthenware vessels should never be used for drinking or bathing water, since being porous, they rapidly absorb the vegetable matters from the water, which putrefy in their pores ; they can therefore never be kept clean.

Servants' Quarters.—The servants usually live in the 'compound' or enclosure round the house. Their quarters should be as far off from the house as possible and should be properly lighted and ventilated. The careful housewife will make a daily visit to these when on her round of inspection, to see that they are kept clean and that there are no cases of illness concealed in them. Visitors and outsiders should never be allowed to sleep in servants' houses at night without her permission.

Kitchen.—This should be near the house, connected by some kind of covered passage with it. The careful wife and mother will never fail to visit it daily. It should be a light, well-ventilated room with a stone

or brick floor, and should be scrupulously clean at all times. The sweeper should never enter it, but the water-carrier (*bheestie*) must flush it down with plenty of fresh water once or twice a day. After meal times, no food should ever be kept in the kitchen, which can easily be kept locked up when meals are not being prepared. If this is not done, the kitchen is apt to be a loafing place for the servants and their friends.

All cooking pots need looking into daily. The best and cleanest are the aluminium saucepans, which are easily cleansed with soft soap. Iron buckets must be provided for fresh water in the kitchen, which should be taken and filled directly at the tap or well of drinking-water. If care be not taken, the bheestie will fill them from his dirty leather waterskin, the lining of which is often found swarming with germs of infectious diseases. The washing up of pots and pans must all be done outside the kitchen, and a cemented drain provided to carry the water off quickly, as it is apt to putrefy rapidly in the heat.

The Store-room.—A well-ventilated store-room is a necessity in an Indian house. There all food is kept between meals in gauze covered safes. A special safe for the milk and butter is advisable which can be kept always locked by the mistress.

In Indian houses, the custom of keeping one bedroom for all the women of the household to sleep in is very unhealthy. Again, stores of food and vessels containing milk are kept in the sleeping room, in which too often the sick and well of a household are crowded together, and the atmosphere is poisonous.

The food should have its own place where it cannot absorb foul germs given off from the living body. A gauze safe in the verandah, and one or two almirahs with shelves for solid food and grains will suffice for most Indian families.

The cook should never be permitted to buy milk or cream for puddings, ices, etc., as he will probably bring it from the bazaar where it has been standing for hours over the foul drains, absorbing the germs of enteric and other such diseases.

CHAPTER II.

Drinking-water—Filters—Milk—Conservancy.

DRINKING-WATER.

The supply of pure drinking-water for a household is of the first importance.

Such are the customs of the lower class natives, that, even with a public supply from water-works, there is no security against pollution.

Hence, *all* waters in India require boiling for ten minutes, and filtration is also needed in most cases.

Boiling not only destroys existing germs, but also removes the chalk, iron and vegetable organic matter, which render water harmful to the organism in various ways. After boiling, water must be stored in clean enamel or china jugs, never in earthenware or clay *soraies* and covered with a damp cloth to keep out the dust.

Where the only water-supply is from a tank or well in the grounds, this should be fenced round and covered with mosquito gauze-netting. The water-carrier must be provided with clean iron buckets for fetching the water in, his waterskin (mushak) meanwhile being left behind at the house where it can be seen.

A pure water shows a faint blue or greyish colour, and has often a sparkle and lustre in it, but foul waters may also be lustrous. It should be clear, without sediment

on standing, and without appreciable odour or taste. On the other hand, an impure water may be of a yellow or brown colour, with an unpleasant taste and smell. If on warming a specimen of water, its steam gives off a fœtid disagreeable smell, it should on no account be drunk. If the only drinking-water procurable should be muddy, a preliminary rough filtering should be done before anything else.

This can be carried out as follows:—To four gallons of the water, add one teaspoonful of Condy's fluid, or fifteen grains of permanganate of potash. Wait 5 minutes, and if the colour of the water is still brown or yellow instead of pale pink, add another half teaspoonful of the Condy, and wait for the sediment to settle. Continue doing this until a pale pink tinge only is apparent in the water.

After allowing the water to stand for six hours, add 24 grains of alum and let it stand if possible for 12 hours. When poured off from the resultant sediment the water is ready for boiling, but it needs to be filtered also before being drunk.

FILTERS.

A great many filters are a source of danger rather than of security, and one of the worst is the familiar three earthenware vessels one above the other, so often seen in Indian verandahs. Even if the *ghurras* are constantly cleaned and renewed, the sand in the uppermost vessel needs thoroughly boiling every two or three days, while the charcoal in the middle one should also be taken out, heated to redness, and then boiled for one hour in water containing permanganate of potash and some sulphuric acid. Of

course this process and the daily emptying and refilling of the *ghurras* must be supervised by the mistress.

In one case where the only child of the house died of a mysterious attack of blood-poisoning, a dead putrid rat was found in the lowermost *ghurra* which had not been cleaned for weeks.

The only safe filters are those of the Pasteur-Chamberland type, of which various modifications can be obtained. Some can be attached to any supply pipe in the house; others with a siphon arrangement are for use when travelling. They are efficient filters, easily taken to pieces, and cleaned, but this should be done by the mistress herself. Muddy waters must first be cleared by the "Condy-alum" process; then passed through the Pasteur filter, and lastly boiled for fifteen minutes.

If rain water only can be obtained, this should be collected in masonry or iron tanks, not wood. These must be covered with mosquito gauze-netting, and thoroughly cleaned out before rain is expected. Rain water should be filtered, and then boiled to remove all impurities with which it may accidentally have been contaminated.

MILK.

The purity of the milk supply for the household is one of the most important questions, since it may be the source of many mortal diseases, consumption, enteric fever, dysentery and cholera. The prevalence of disease among the cattle is very widespread, owing to the filthy surroundings in which they are kept, and bad feeding; while the milk is too often stored in dirty brass or earthenware vessels, in a foul atmosphere, or adulterated with dirty unboiled water.

It is not enough to receive the pure milk directly into clean vessels which have been scalded out with boiling water, but the udders of the cows should be first washed over with warm soap suds, and dried with a clean soft towel. The milk must be then brought thoroughly to the boil, and kept there for 3 to 5 minutes. It should be now stored in *clean* enamel or china jugs or bowls, covered over with several thicknesses of a damp cloth to exclude dust (or better in sterilized glass bottles with glass stoppers), and stored in a room where the atmosphere is as pure as possible.

Boiling the milk kills disease germs in it, and prevents decomposition ; but even so, it will again rapidly absorb foul gases and germs, if stored near a bad drain or other source of contamination.

Milk is a perfect food, that is, it alone can support life in health. Invalids and children can live and thrive for a time upon it when modified to suit the special circumstances, age, or disease.

CONSERVANCY.

Lastly, *conservancy* matters and the proper disposal of the refuse of the household, needs constant care and supervision. Except in a few large towns of India where there are drains, all sewage has to be removed daily from the premises in carts. If there is a servants' latrine in the compound, it should be remote from the dwelling-house and servants' quarters; and will need regular inspection to see that it is kept clean. The floor should be paved with concrete or stone, and the sweeper must be provided with several large earthenware pans (*ghurras*) of clean water, and plenty of phenyle to wash it down with.

The sides of the latrine should be of corrugated iron, tarred inside and out for some feet up from the ground. Near by will stand two large iron receptacles, one of which is emptied daily, and the contents removed by the public cart. The other one not in use should be carefully dried in the sun after cleaning, and tarred over, ready for use in its turn. Both receptacles must have well-fitting lids.

The sweepers must also mix some dry earth (not sand) with the excreta when emptying the commodes into the iron pans; and there should always be a little clean phenyle standing in the commode in the bath-room. If these unsavoury matters are not attended to by the mistress, the household will surely suffer; for the sweeper much prefers to save himself trouble by emptying out the refuse into a corner of the compound, where it remains a source of danger to the residents.

In one case where the household suffered from constantly recurring attacks of dysentery without apparent reason, a strict watch was set upon the sweeper. It was then discovered that the commodes were being regularly emptied into a shallow pit close behind the house, a mere handful of sand being then thrown upon the dangerous mass. When this improvised cesspool

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In an Indian household, the privy should be built far away from the living rooms, and all the refuse should then be received in well-tarred iron pans, which can be easily removed twice a day. Dry earth should be thrown on the dejecta every time the privy is used. The privy should be the cleanest place in the dwelling and may be swilled down with phenyle twice a day. Two or three kerosine tins should be kept for the other house refuse, remains of food, etc.

A special sweeper kept for each household, instead of depending on occasional visits of the road sweepers, would save much money spent on doctors and medicines for illness.

was done away with and the surrounding earth dug up and removed, the dysentery ceased at once.

CHAPTER III.

General considerations—Effect of climate on the bodily organism—Diet—Exercise and fresh air—Clothing—Bathing—Sleep—Rest.

PERSONAL HYGIENE.

From all that has gone before, it can be seen what minute care is needed for the healthful regulation of the household in India. To be a successful 'home maker' the same care is needed in matters of personal hygiene.

It is only by the exercsie of thought and determination that the wife and mother will preserve her health and energies, and hand on an unimpaired constitution to her children.

It is well for her to realize first of all what special dangers are to be feared from the action of the climate and surroundings upon the bodily frame.

To begin with, the effect of high temperatures through prolonged periods is to overstimulate the nervous system, which becomes highly susceptible and, in the end, overstrained and depressed. The heart and circulation participate in this depression, digestion is slower than in cold countries, the appetite less keen, and the liver overburdened with work.

As a result of all this, the proper nutrition of the body is not carried out and the blood becomes poor and thin; while the body in consequence loses its power of resisting disease, and all the muscles become relax and weakened. Lastly, the heat over stimulates the skin, rendering it more liable to chills.

In chill, the blood is suddenly sent from the skin to the deeper organs of the body; hence the 'congestion' of the liver and disorders of the bowels so often following upon a 'chill.'

Other questions which will have to be faced are: "What points in my daily habits will need modification if I am to adapt myself to these new conditions?"

"How much rest and sleep do I need to recuperate my nerve energies, and ensure a serene temper being preserved under all circumstances?"

"What shall I deny myself in order to make the best of my time and reconcile my home duties with the claims of society so often insistent in India?"

Lastly, "How can I guard against the climatic diseases of India?"

DIET.

The result of living in a hot atmosphere is that less work is demanded of the lungs, but more work falls upon the liver in getting rid of the waste products of the body. Consequently lighter meals and more easily digested food are necessary. Still, *plenty* of food and that of the best quality obtainable must be eaten, for, as before explained, the climate itself tends to lower the nutrition of the body.

The early breakfast on rising of tea or cocoa, toast and fruit, makes a good beginning of the day. The second meal is taken at about 11, and should consist of light meat, eggs or fish, porridge and stewed fruit. Between these two meals an active woman if she rises early to see to her household, will certainly need a cup of milk or other light refreshment, without which she may feel exhausted after her exertions.

Tea at 3 or 4 o'clock, and dinner at eight, at which red meat may be eaten, complete the meals of the day. Altogether, less of animal food, and more of milk, cereals, vegetables and fruit are needed than in a temperate climate.

Tinned provisions should be altogether eschewed by the wise housekeeper. She should inspect the meat daily, and see that it is firm, red, and acid to litmus paper, (turning this *red* in colour) and free from all unpleasant smell.

Good fish is not easily to be obtained far from the sea; the gills should show a pink colour; and the mistress must take knowledge as to how it has been caught in the case of river fish. Too often, a native will pick dead or poisoned fish out of a backwater, and take it round to sell!

Raw salads often contain germs of infectious diseases, absorbed from foul soil, or the ova of worms, so must be cleansed with boiled water and Condy's fluid repeatedly, before being eaten.

Meat is most nourishing when roasted, stewed or hashed. Baking spoils it, and twice cooked meat should never be eaten in India.

Aerated waters should be obtained only from some reliable English firm and never bought (when travelling) from natives or at small stations. Ice should not be put into water or other fluids for drinking, as freezing does not destroy germs in it.

Plenty of *fluid* in the diet is a necessity especially in the hot weather. A tumbler of icy cold water half an hour before all meals will often stimulate a jaded appetite, and will prevent constipation.

Alcoholic drinks are quite unnecessary for the healthy woman in India. She rarely has to sustain prolonged

physical exertion, and so cannot get rid of the drug rapidly from the system.

It has been proved that 1 oz. of alcohol is the most that can be taken up by the system. Anything above that limit acts as a poison, irritating the overstrained nervous system and congesting the stomach and liver. If taken at all, it should be only at the end of the day, and up to this limit of safety, with food of some kind.

About two ounces of spirit, whisky or brandy, corresponds to one ounce of pure spirit.

EXERCISE AND FRESH AIR.

Owing to the liability to internal congestions, a certain amount of exercise is usually advisable, but the tendency is for women to take too much, rather than too little, violent exercise when they first come to the country.

In the heat of the plains all that is needed is gentle exercise once or twice a day, and a life lived out of doors. Some women are better without any games or dancing. For those who suffer from liver disorders, gentle exercise in the open air is even more necessary in India than in England.

At the same time, it is important to remember that all exercise should stop short of inducing a fatigued feeling or exhaustion, since this means a lowering of the vitality and renders the system more liable to chills and malarial poison.

It is not possible, however, to lay down one rule for all. Most wives and mothers will have to do an hour or two of standing and walking in the compound when supervising the household, and this in the hot weather is quite sufficient exercise; a long walk or ride in addition on first rising in the morning, will only induce

a feeling of languor and fatigue for the rest of the day, and is consequently a mistake.

If more exercise is needed on account of sluggish liver or constipation, the best time for it is *in the evening*, when she can renew her energies by a good meal, and a long night's rest, after the exhaustion of a game or ride in the heat.

On the other hand, instead of shutting themselves up in a darkened house in which fresh air is rigorously excluded from early morning, if women lived more in the *open air*, they would keep their health and complexions. In most parts of India the outside fly of a tent pitched under a shady tree, makes an excellent workroom nearly all the year round.

Even in the fierce summer heat of the Punjab it is quite possible to sit out in a shady verandah till 10 or 11 daily. In any case plenty of *light* should be always admitted to the house, the rooms of which should never be entirely shut off from the outside atmosphere.

A light Sandow apparatus fixed to the bedroom wall, and used once or twice every day, is most useful in the hot weather, and particularly for women to use when other exercise is forbidden.

Bicycling should only be indulged in by the young and strong, in moderation. A woman should sit well back on the gluteal region, not on the "perinæum" in front, and should lean slightly forwards on the saddle. Exercise taken in the heated air of crowded rooms is never anything but exhausting in India, and renders the system more liable to chills and climatic diseases.

CLOTHING.

It is essential in all parts of India to wear wool next to the skin; the thickness and kind of material

should be suitable to the special conditions; fine gauze wool, or silk and wool being used in the hot weather, thicker Jaeger combination garments in the cold. Wool is a non-conductor both of heat and sun. Hence it prevents rapid evaporation and chills, besides being less absorbent and therefore more comfortable than anything else.

Silk materials come next to wool in these respects. Linen and cotton being very absorbent and rapid conductors of heat, are quite unsuitable for wear next to the body. It is useful, however, to wear closed knickers of fine cotton over the wool combinations, as these preserve the parts from chills, and the entrance of germ-laden dust.

In one case this simple precaution put an end to repeated attacks of congestion of the bladder, in an otherwise healthy woman living in a gusty, dusty part of India.

Throughout the year a loose woven cholera belt, or piece of fine flannel should be worn night and day round the abdomen. This can be kept in place and prevented from slipping up by two or three safety pins fastening it to the knickers.

The corset, as usually worn in the heat of India, is a most pernicious article of dress. It overheats the region it covers, prevents evaporation from the damp garments beneath, and renders the internal organs therefore liable to chills. It also impedes the circulation and lungs, preventing waste materials from being thrown off properly, and so assists in the production of the dyspepsia, anæmia, and nervous disorders so common in the country.

In addition, corsets, if worn tight, tend to displace internal organs. When worn in hot weather, they should be of some porous material and without *steel* supports. They may be strengthened instead with whalebone, and have supports to take the weight of the skirts off the hips and abdomen. A well-fitted bodice, on to which drawers and skirts can be buttoned, is however far the more comfortable garment during the heat of the day, and these have the advantage of being easy to wash. All through the hot weather, under-garments need to be constantly changed and dried, if chills and 'prickly heat' are to be avoided.

Where the skin is easily irritated and prickly heat induced, a fine silk vest may be worn, in place of or beneath the woollen garment.

New arrivals in the country should always wear wool stockings, which are a protection against mosquito bites, and indeed these are essential in malarious districts.

Provided these matters of clothing are attended to, it matters little what upper garments are worn. The good sense of Englishwomen usually leads them to choose the most suitable textures for the climate and circumstances they are living in.

BATHING.

The skin is an organ not only of *sensation*, but also of *respiration*, *excretion* and *secretion*. More solid matters are thrown off from the skin than from the lungs, the proportion being as 11 to 7. In India, owing to the heat impeding the work of the lungs, still more is thrown upon the skin, the care of which is of great importance.

A daily bath of warm water should always be taken, preferably on rising in the morning, followed by a douche of cold water thrown quickly over the whole body.

This method ensures the tonic effect of the bath, besides acting as an effectual protection against chills. Women in India should avoid cold baths entirely. These tend to increase the congestion of internal organs by throwing the blood back to them from the chilled skin. In feeble persons, a tepid douche may be substituted for the cold water.

The skin is apt to get into a sodden enfeebled condition in the hot weather, so only the purest soaps (Vinolia or 'Superfatty' brands) should be used. If no soap is used, the grease and fatty acids of the skin are not removed, nor does cold water really cleanse the skin from these. This is why the Indian fashion of bathing by pouring cold water over an oily greasy skin, is so ineffectual, and skin diseases of all kinds are common among them.

Violent exercise should never be taken after a bath. For anæmic or weakly women in India, it is a good rule to drink a cup of hot milk or *café au lait*, imme-

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N.B. In native Indian houses the arrangements for bathing may make a good soak in hot soapy water impossible. But a basin of hot water, soap, and a piece of flannel, are within the reach of most. The flannel should be wetted in the hot water and with it the soap can be rubbed well into every part of the skin. It is then washed with the hot water and flannel, and cold or tepid douche thrown over the body. The cold bath as usually taken by the Indian woman, is not only inefficient, but a fruitful source of chills and disease; while it would be appalling if one could realize the number of women killed every year by the 'religious' or 'ceremonial' bathing in rivers and tanks.

diately on leaving the bath before dressing. If a bath is taken in the evening after exercise, as well as in the morning, it should be of tepid or barely warm water and followed by the cold douche.

SLEEP.

We know that the energy we spend on activity, of the brain, muscle and spirit during the day is obtained by the actual burning up of the cell substances of the body. "We can only truly live because we are constantly dying," holds good in the material as in the spiritual world.

Now it is chiefly during the repose of other activities in sleep that all this expenditure is made good. Old waste material is thrown out of the body, and new put in its place; so that when we wake up after a sound night's sleep, we may be said to have been really *fed*. The fact that this nutritive process, and repair of the tissues of the body, may go on more slowly in one person than in another, explains how it is that people differ in the *amount* of sleep really needed by them.

In India, if owing to a less active life we lose less energy by the muscular system, yet more nervous energy than usual must here be expended in facing the anxieties and exigencies of the life and the climate.

And when we realize that nerve tissue takes longer to repair than any other, it will be seen that most women need more, rather than less, sleep than in England.

To get good sleep in the hot weather is a difficult matter, and the sleepless habit once formed is a serious menace to health. There are innumerable noises going on all night, pariah dogs, hot winds, dust-storms and mosquitoes to contend with, besides the iniquities of

sleepy punkahpullers, all of which hinder sound sleep.

In many parts of India sleeping out of doors on a roof or verandah (with proper precautions) seems to ensure the soundest sleep. But care must be taken to secure protection from mosquitoes, and wool night garments and coverings must be worn. With the universal introduction of mechanical punkahs, one great hindrance to good sound sleep will be removed; but sleeping out of doors has the advantage that it does away with the need for punkahs altogether.

On returning into the house in the morning, the air of even an unused bedroom feels hot and exhausted compared to that outside. When sleeping indoors, therefore, the bedroom should be airy, and wide open at night to the outer air. Even in the coldest weather the windows should stand open, and these must never be shut up entirely to keep the hot air out.

In the heat, a bedstead of the simplest make is best; webbing (nawár) stretched over an iron or wood frame, with a folded blanket and sheet laid on it, allows of free evaporation all night, and so keeps the body cool. *Sleep is more important than exercise or food.*

By attention to these rules of personal hygiene, and by avoiding the late hours of retiring so common in India, the healthy woman ought to secure eight hours' sleep at night, and should not be satisfied with less. The best sleep is usually obtained during the early morning hours, and hence children should always be allowed to sleep on till they waken of themselves. For women at least, whose day is at their own disposal,

too early rising is a mistake, and soon exhausts the system.

REST.

The wise woman in India will not waste her good gift of health if she has it, but will always stop her exercise, her work, or her society demands, before she has reached the limit of her strength. Indeed, it is well to face the problem at the beginning, and draw up rules to ensure a sufficiency of rest, without which it will be impossible to preserve the serene spirit and happy temper which beautify the home life, and ensure sound health and nerves.

First of all, one hour daily should be spent *lying flat on the back* on a bed or sofa with loose garments. If the feet of the bed are raised slightly, this ensures greater rest to the heart and circulation. Nothing should be allowed to disturb or interfere with this midday rest; notes and messengers can usually wait that length of time.

Then, a certain hour should be fixed for solid reading, art pursuits, or any other hobby which is in itself a "*re*-creation," and therefore a true *rest* to the mind. If subject to dyspepsia, a short rest lying down (20 minutes) before each meal, and the same immediately after it should be taken. She will also refuse all invitations to late entertainments at night (which may cut short sleep) more than once or twice a week if possible. Lastly, the household duties should be finished early in the day, and should not be allowed to encroach on the afternoon hours.

A good mistress will be able to train her Indian servants in orderly ways as if they were children, and

if they realize that what they need must be asked for at a certain time, *or else provide it at their own expense*, they will learn to be careful and thoughtful, and there will be less cause for irritation of temper, and the nervous exhaustion caused by it. In this way, and by a determination to keep her own rules, a woman may learn to *rest*, before she has reached the point nervously where rest is impossible. And thus she will be able to hand on to her children that greatest of inherited blessings, a well balanced nervous system, and the serene and happy temper which result from it.

CHAPTER IV.

SOME COMMON INDIAN DISEASES.

Sunstroke—Chills—Malarial Fever—Dysentery—Enteric or Typhoid Fever.

The reply to the last question of all involves the study of several diseases, common in India.

SUNSTROKE.

This complaint results from exposure to the extreme heat, or to the sun's rays, without proper protection in a moist atmosphere. Headache and fever are the earliest symptoms, followed by nausea and irritability of the nervous system. Convulsions and unconsciousness, with puffing breathing, are seen in severe cases.

The moment the first symptoms appear, the sufferer should lie down in a cool dark room under a punkah; have plenty of cold water to drink, and the body sponged with cold water. Ice may also be applied to the head; and a sharp purge should be taken.

When likely to be exposed to the sun, in the hot hours of the day, dark glasses and a pith hat should always be worn. This should have a broad brim, back and front, and some means of ventilation to ensure circulation of air around the head; thus protected, a healthy woman can be out till 10 or 11 A.M. if necessary. But children are more susceptible, and should be in the shade of a verandah by 7 or 8 o'clock, according to the climate.

When travelling in the heat, plenty of ice should be taken, also drinking-water; wet cloths kept on the head will prevent headache, but veils should not be worn in front of the face. Living in unventilated rooms, constipation, and the habitual use of alcohol, make women more liable to sunstroke.

By *Heatstroke* is meant a sudden attack of unconsciousness (really a 'faint') after exposure to great heat, or in ill-ventilated foul rooms. The sufferer must lie flat down, have her limbs rubbed, while, at the same time, the head is fanned, and a little stimulant administered by the mouth. A mustard plaster over the heart, and artificial respiration must be tried, if the unconsciousness is prolonged.

CHILLS.

The resident in India must learn to avoid these as the most frequent cause of many disorders; the skin being more active in the heat, and also more sensitive,

there is greater evaporation and transudation, so that sudden changes of temperature affect it severely. In this way, a sudden check to the action of the skin will send the excess of blood to the deeper organs, which become congested, or overburdened with blood which they have no use for.

Besides this, chill depresses the system, and renders the body less able to resist germ diseases.

Constant thought will be needed to avoid taking chills. But if the ordinary rules for personal hygiene are followed, and a warm garment or wrap always taken out for wear after sunset, when returning from the drive, nothing more than common sense is necessary.

We have to recollect the great difference between day and night temperatures, especially in the cold season, and the sudden fall which often takes place after sunset. A cold bath is rarely advisable, and must never be taken when greatly overheated or fatigued. Instead, a warm bath is safer, or the body should be rubbed down with a dry towel, and clean dry woollen clothing put on. At night, a fine woollen shawl or sheet should be used as a covering under the punkah, if a blanket cannot be borne. After having been exposed to a chill, a very hot bath should be taken and a hot drink (milk or coffee), followed by bed, and a dose of 10 grains of quinine. An aperient should be taken next morning if required.

MALARIAL FEVER.

This disease is due to a parasite in the blood, which is introduced into the body by the bite of mosquitoes. These having fed on malarial blood, drawn from the

body of a person suffering from the disease, can convey it to another, when eight days have elapsed. During this time, the malarial organism is going through the process called 'Spore formation' in the body of the mosquito. At the end of eight days, the mosquito, when biting a healthy person, deposits these 'spores' of malaria in his blood and then the symptoms of 'malarial fever' soon appear. There are several forms of the disease. according to the time that elapses between the attacks, which may come on every day, or every second, third, or fourth day.

As a rule, an attack of 'ague' begins with shivering and headache, with a rise of temperature, and possibly vomiting. This is the 'cold stage.' Next, the body becomes flushed and red, a sensation of burning heat is experienced, and the thermometer may show a temperature of 103° F. or even higher. Delirium in adults and convulsions in children are not uncommon at this 'hot stage.' Lastly, there is the 'sweating stage,' when the temperature falls to normal or below it, the skin perspires profusely, and the sufferer falls into an exhausted sleep.

When a 'chill' has been incurred, it is possible to cut short an attack of ague by taking 15 grains of quinine, and a purgative. But during the cold stage of an attack, plenty of hot tea should be given to drink, and hot bottles in the bed, with a dose of antipyrin (5 grains) to relieve the headache. Plenty to drink (tea, cold water) should be given throughout the attacks, and 15 grains of quinine immediately it is over, when the temperature is falling.

The precautions to be taken against malaria involve some knowledge of the cause of the disease. Now, it is a known fact, that mosquitoes lay their eggs only in still water, in which their larvæ develop. So all stagnant pools, ditches and cisterns should be done away with, as far as possible, from the neighbourhood of a house, and pots or vessels of water emptied and dried at least *once a week*.

Reservoirs for drinking-water should be covered with gauze mosquito-netting to prevent the eggs being laid in them. It is the female mosquito alone which conveys the malarial poison from one person to another; and, as a rule, she only feeds between sunset and sunrise. Hence, in malarious districts and everywhere during the monsoon, mosquito-nets should be used for beds at night, and the less people are out in night air the better. Women who are sensitive to malaria should not go out after sunset without a veil, gloves, woollen stockings, and boots, and every precaution should be taken to avoid chills.

Pure drinking-water, and an abundance of good food and cheerful spirits are important in the prevention of this disease, which can be guarded against only by attention to all the ordinary rules of hygiene, food, cleanliness, the wearing of proper clothing, and the avoidance of chills. In malarial districts, and during the rainy season, it is wise to take 10—15 grains of quinine, every ten days, on *two successive mornings*; or five grains daily as a preventive may be taken.

DYSENTERY.

This is an inflammation of the lining of the bowel, going on to ulceration. It is almost more to be dread-

ed than malaria or the other climatic disorders of India, since unless vigorously checked at first, it tends to become chronic, and will undermine the strongest constitution permanently. It is often associated with malaria and liver disorders.

The disease is due to a bacillus or microbe introduced into the system by polluted water or milk, or it may be communicated directly from one person to another through insanitary latrines and dirty habits.

Anything which disturbs the digestion and the circulation in the bowels will predispose to dysentery, which is very common in the hot season of the year, particularly in the spring and the rains when sudden changes of temperature are experienced.

In the prevention of this disease the importance of avoiding chills and coarse indigestible food come first.

Living in unhealthy localities, badly drained houses, and foul air, all are common causes of dysentery. Woollen underclothing should always be worn, and the abdominal belt; all drinking-water should be well boiled to remove impurities and the mineral salts which favour the disease.

Pregnant women are specially liable to it, and very frequently abort if not quickly treated.

Constipation and overdosing with alcohol are other predisposing causes; also the lack of green vegetables and fruits in the diet, which induces a scorbutic condition. In children who are fed on boiled milk only, a mild scurvy may develop which induces dysentery, and makes the disease more dangerous.

To counteract this tendency, children who are being fed on boiled milk and the Patent Foods require a daily dose of strained orange or grape juice.

The actual attack of dysentery can usually be traced to infection through food or drink, but it may also result from a sudden chill, or an attack of severe indigestion.

The early *symptoms* are diarrhœa, with griping pain and some nausea. More or less fever may accompany the attack.

If not treated, the stools soon consist of blood and mucus, passed with great frequency, and much straining and heat of the fundament.

No time should be lost in sending for the doctor, but until he arrives much may be done to cut short the attack.

Treatment.—In the mild form the patient must get to bed at once, and not rise from it for any purpose till all symptoms have been absent for 24 hours. Two teaspoonfuls of castor oil with 30 drops of chlorodyne are to be taken at once. Hot turpentine fomentations on the abdomen will greatly relieve pain or tenderness. The food must consist entirely of liquids, milk diluted half and half with soda or barley-water, whey, rice-water or a little raw meat juice may be taken.

After the first day, when the symptoms are subsiding, one to two teaspoonfuls of castor oil emulsion may be taken each morning and night for a few days, or 5 grains of Dover's powder three times a day in a little water.

The severer cases, with much vomiting, straining and frequent passage of mucus and blood, call for

more vigorous treatment when no doctor is available. First of all, 40 drops of chlorodyne in a little water must be taken. After getting to bed, an enema of one pint of warm water in which a tablespoonful of boracic acid has been dissolved is to be given gently from a fountain douche can, or the starch enema mentioned in Chapter VI is useful.

Next the patient should take a teaspoonful of sulphate of magnesia dissolved in a wineglassful of water every hour, until six or eight doses have been given. Five drops of chlorodyne may be added to each dose if there is much sickness.

A big mustard plaster, or hot fomentations, may be applied to relieve the pain in the bowels—and the enema as given before may be repeated night and morning.

Liquid food in small quantities, warmed, should be given from a feeding-cup regularly every two hours. Hot water bottles in the bed are required where there is much vomiting and purging, to prevent collapse. The magnesium sulphate mixture may be continued three times a day until the stools have changed, and are free from mucus and blood, but every effort should be made to obtain skilled medical advice as soon as possible, in order that the serious results of chronic dysentery may be avoided.

The digestion is often seriously impaired after dysentery, and constipation and irregularity of the bowels give much trouble. A very good mixture to take for a few days after the attack, is one containing five grains of Dover's powder with three grains of quinine in a little water three times a day. A teaspoonful of brandy in the mixture will dissolve the quinine.

For the constipation which often follows dysentery, plenty of fruit juice, and the syrup of bael fruit are useful, and a small dose of castor oil twice a week may be taken.

If anything more is needed, resort should be had to the daily enema of warm water, but strong purgative drugs should not be taken after dysentery. Where the disease recurs, and shows a tendency to become chronic, the best cure is a change out of India. The utmost care in diet is necessary for some weeks after an attack of dysentery, and violent exercise should not be taken.

As the dysenteric stools are most infective, they should always be received into vessels containing a disinfectant, and removed at once from the room to be burnt. All soiled clothing should soak for some hours in carbolic lotion and thereafter be boiled for half an hour.

When the disease attacks *children*, the symptoms will be very much as in adults, and there is often high fever. The child looks languid and ill, diarrhœa with green, curdy, or slimy motions comes on, but soon only mucus and blood are voided with much straining. If previously constipated, the child should be given a teaspoonful of castor oil, and be put to bed. Two hours later, this can be followed up by castor oil emulsion, which should at first be given every two hours, but later, as the stools improve, every four hours. The dose for a child under two years old is half a teaspoonful, from two years to four years old one teaspoonful. Washing out the bowels with a gentle enema containing boracic acid is also useful. If an infant is exhausted from frequent stools, a hot bath containing two teaspoonfuls of mustard is an excellent stimulant.

The child should be given no milk. To infants, *white-wine-whey* or rice-water, one tablespoonful mixed with a tablespoonful of barley-water, may be given every four hours. For older children this may be supplemented by raw meat juice, "Brandy and egg mixture," and peptonised milk. A child's digestion remains weak for a long time after such an attack, and the utmost care is needed in dieting those who have recovered from the disease.

The new serum treatment for certain forms of dysentery promises to deprive this serious complaint of its chief terrors. When used early, it seems to prevent the disease from becoming chronic.

ENTERIC OR TYPHOID FEVER.

New arrivals in India and young people are particularly liable to this disease, which, however, spares no one of any class or age.

It is due to a germ which enters the body in food or drink, or rarely by the lungs. Once admitted, it multiplies very rapidly in the bowel, causing ulceration of its lining membrane and general blood poisoning. The bacillus or germ leaves the body in the discharges, the motions, urine, and sputum from the lungs, so that these discharges if not burnt or properly disposed of, serve to spread the disease by infecting the soil, water or food.

Symptoms.—If a fever continues without intermission for several days in spite of careful dieting, rest and quinine, it may be suspected that it is enteric.

This is a three weeks fever, accompanied by serious symptoms, the most noticeable of which are headache, diarrhœa or persistent constipation, dullness and delirium. The tongue is very furred and dry, the

lips covered with dry scabs. In the second or third week the abdomen may get greatly distended and very painful. Tremors of the hands with constant fumbling and picking movements are a bad sign; the patient at last sinks into a stupor which may end in death.

The passage of many "pea-soupy" motions and of blood from the bowels makes the case more serious. There is always danger of sudden death from heart failure; hence from the first suspicion of the disease, the sufferer must be kept in bed and never allowed to sit up for any purpose whatever.

The room should be bright and airy, devoid of all hangings and unnecessary furniture or floor cloths. Only those in attendance upon the sick should enter it. When the fever is high, or in the hot season of the year, much benefit is obtained by the "wet pack." The patient lies on a blanket and three towels wrung out in cold water are laid upon the body from the neck to the feet. These can be constantly replaced in rotation from above downwards, as they get warm, by other towels wrung out in tepid or cold water. This "wet pack" can be continued for half an hour or so, until the temperature has fallen; often the patient gets a good refreshing sleep after it. It is very useful for restless children. The *diet* must be liquid only; whey, with a teaspoonful of cream in it, rice-water, and milk diluted half and half with lime-water, or plain boiled water are best. The strained juice of certain fruits, raw meat juice and egg-albumen are sometimes given by the doctor's orders.

All food must be given in small quantities of two to three ounces, regularly every two hours. When there is profuse diarrhœa, the "alum whey" is very useful. A teaspoonful of best powdered alum is shaken up with one pint of boiling milk. The curd is strained off and the whey drunk as food, alternately with rice-water or other fluids. Solid food should not be taken till the temperature has been normal for a month, unless ordered by the doctor.

To prevent the spread of enteric, all excretions should be received into vessels containing phenyle or some antiseptic. Their contents can then be mixed with chloride of lime and deeply buried at a distance from any habitation, or else burnt

During an epidemic, or if a case has occurred in a house, the latrines and pails must receive special attention, and disinfectants should be plentifully provided and used. It is well to boil all soiled clothing for an hour, after disinfecting it in carbolic lotion. The hands of a nurse should be constantly washed after touching the patient, the room also will need thorough disinfecting, and the walls should be washed down with perchloride of mercury lotion and re-whitewashed.

CHAPTER V.

Constipation—Congestion of the liver—Diarrhœa—Piles—Dyspepsia.

CONSTIPATION.

For many reasons this is a common complaint in India. If care be not taken from the first to ensure a satisfactory evacuation every day, the bowels lose tone in the heat, and become less and less inclined to expel their contents. Then the liver and other organs suffer, and the resistant power of the system to germ diseases is lowered.

The usual causes of this condition are bad habits of life, want of exercise, irregularities in diet, and want of sufficient fluids in the food, to wash out the intestines. Where the tendency to constipation exists, plenty of water should be drunk *between meals*,—and a glass of water, either hot or cold as preferred, is taken on rising in the morning, and going to bed at night. Plenty of variety in the food is important. Stewed fruit, porridge and whole meal scones or brown bread, made of the crushed wheatmeal of the bazaars, are useful articles of diet. But if eaten daily, any of these will soon lose its irritating effect upon the bowels. Plenty of fat, cream, butter, and "ghi" are important articles of diet, and in India where the meat is very lean, and the

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N.B. The lack of variety and of fluids in food eaten by the Indian population is one cause of the habitual constipation with which they are afflicted and which leads on to so many other complaints.

If each meal began with a good vegetable soup, and if all food were eaten very slowly and well mixed with the saliva in the mouth, this trouble would decrease. Again, four small meals a day are better than two large ones, while snacks eaten at odd times only produce constipation and indigestion.

milk poor, an increased amount of fats is needed as additions to the ordinary dietary.

It is here that *olive oil* is most useful.

This is a very digestible form of fat, and does not derange the liver.

One dessertspoonful swallowed every morning on rising, with a little fruit or lime juice, acts as a gentle laxative. It is specially useful in the constipation of pregnancy, and after dysentery or enteric fever.

For children, a pie-dish may be half filled with figs, dried or fresh stewed, covered with brown sugar, and olive oil to fill the dish poured over them. This "pudding" is warmed up in the oven, and eaten with relish. Two or three of these figs will be enough for a child.

Other safe means to use are gentle *massage* or rubbing of the bowels, beginning on the right side and ending on the left; also the occasional use of warm water injections into the bowel from an enema syringe, or fountain douche can.

The *enema* can best be self-administered if a fountain syringe is used. A pint of warm water plain, or mixed with good white soapsuds, or with two tablespoonfuls of olive oil, acts well. The recumbent posture should be maintained for quite ten minutes after the enema.

The rubber tubing from the douche can should be held in the fingers, and by pressure on it the flow can be stopped from time to time to ensure the injection being slowly given.

Strong purgative drugs and patent medicines must not be taken for constipation, as they only increase the trouble afterwards.

If necessary, an occasional wineglassful of laxative mineral waters, Carlsbad or Friedrichshalle, in a

tumbler of cold water, can be taken on rising in the morning. When piles are troublesome, the best laxative is the cold water enema; and an occasional dose of Cascara Sagrada is useful in this condition, which results from habitual constipation.

When the warm water enema is not available, the injection of two or three teaspoonfuls of glycerine into the bowel is a good substitute. For this a small glass syringe, with a piece of rubber tubing 3—4 inches long put on to the nozzle, is all that is required.

CONGESTION OF THE LIVER.

This results from chills, and chronic constipation, and also from eating rich unsuitable food, a too sedentary life, and frequent 'pegs.' The special tendency to it observed in India, is due to the heat. This throws more work upon the liver, since much of the waste material of the blood, which should pass out through the lungs, has to be got rid of by increased flow of bile. If, therefore, the flow of bile is checked suddenly by any of the above causes, congestion results.

The *symptoms* consist of pains between the shoulders, and through the right side, with nausea, some fever, and even slight jaundice. A hot bath ought to be taken at once, and a mustard poultice applied to the right side, over the lower ribs, after getting to bed. Two or three compound rhubarb pills or a large dose of aperient mineral water may be safely taken (half an ounce of Carlsbad salts). Liquid food only should be taken for 24 hours, and the less of this even the better.

Exposure to the sun or extreme heat in the middle of the day must be carefully avoided for some time after an attack, and very little meat food taken for some

weeks. Hot water should be freely drunk both morning and night, also barley-water, toast-water and soda-water. Woollen underclothing and the abdominal belt should always be worn. If these measures do not soon relieve, a doctor should be called.

If the congestion is accompanied by diarrhœa, it becomes a more serious matter, and medical aid should at once be sought, as dysentery seems to have a close connection with disorders of the liver, and may result from them. People with sluggish livers need to take plenty of exercise, and drink several tumblersful of water between meals—but not with food.

DIARRHŒA.

This is sometimes the result of liver disorders, or may come on quite suddenly as the result of chill, or infected food or water. No time should be lost in getting straight to bed, as it is not safe to neglect even mild diarrhœa in India. The food should consist of liquids only, given cold or tepid every two hours regularly. If irritating food has caused the looseness, a dose of castor oil (two teaspoonfuls) with 20 drops of chlorodyne, can be safely taken.

A mustard plaster over the abdomen will relieve the griping pains, or hot fomentations may be applied. When due to a chill, rest, warmth, and 40 drops of chlorodyne will often cure. If diarrhœa tends to drag on after the acute stage is over, 5 grains of Dover's powder should be taken three times a day.

PILES.

These are small tumours which form by dilatation of the veins round the entrance to the rectum or bowel passage (called anus). They frequently result from

disorders of the liver, constipation, or the overuse of purgatives and stimulants. During pregnancy they may give much trouble, and owing to the pressure, which cannot be removed, it is difficult then to cure them. Sometimes they are inside the bowel passage, but usually they protrude and may even bleed profusely. Full-blooded people may, however, be benefited by the occasional hæmorrhage from 'bleeding piles.' But they may become a source of great suffering and debility when neglected.

(1) When very painful and inflamed, it is necessary to stay in bed for a day or two, and apply warm linseed poultices to the part; these should be changed every two hours during the day.

(2) If tender and irritable, sitting for quarter of an hour in a basin of very hot water to which a solution of subacetate of lead (½ oz. to the pint of water) has been added, will give relief. This should be repeated every two hours or oftener.

(3) A daily rectal injection of a pint of *cold* water to which a teaspoonful of hazeline has been added is useful if the piles bleed.

(4) In any case, a daily enema of tepid water is most useful, to remove the constipation and clear away all pressure from the rectum.

(5) A decoction of strong tea [made by standing half a pint of hot water for an hour upon the old tea-leaves till the tannin has been extracted] is very soothing where the piles are irritated or painful; they must be constantly bathed with it every hour or so of the day, and the cold lotion allowed to dry on. Plenty of water should be drunk, apart from meals and never with food. Spiced food, meat and alcohol must all be avoided dur-

ing a bad attack. Simple milk food, cereals, eggs, and fish may be eaten, and plenty of stewed fruit and green vegetables.

A dessertspoonful of salad (olive) oil first thing on waking in the morning is useful, and if constipation is troublesome, two to three rhubarb pills or a teaspoonful of liquorice powder will do good. Castor oil and all strong purgatives do harm, rather than good, and should never be resorted to in India.

When no means serve to alleviate the suffering from chronic piles, they are best removed by a simple operation, which is often the only means of cure.

DYSPEPSIA.

The indigestion, that so frequently accompanies anæmia, pelvic disorders, and the special climatic diseases of India, is the cause of much discomfort and ill-health.

Symptoms.—There is usually a sense of fulness with pain and oppression in the chest. Griping pains and colic may accompany each evacuation of the bowels. Flatulence and rumbling of gas in the intestines give much annoyance, also acid eructations from the stomach. At times the palpitations of the heart are so severe as to induce the fear that there is real heart disease.

It is a difficult ailment to cure, for digestion is a complicated process, in which the stomach, liver and 24 feet of bowels are involved. Derangement of any one organ or part of this apparatus may put the whole out of gear.

In the first place, the food must be well and slowly masticated in the mouth, in order to mix it thoroughly

with the *saliva*, which digests starch. Children's food contains much starch, so they especially must be taught to chew and eat their food very slowly, to ensure perfect digestion. Next, the food reaches the stomach and meets there with another digestive, the *gastric juice*, with which it is thoroughly mixed by vigorous churning movements of the stomach.

Neglect of healthy living, want of exercise, and breathing bad air, cause debility, and impair the churning powers of the stomach.

Chills, improper food, nervous and other diseases, alter the quantity and quality of this acid gastric juice, which may be too small in quantity to digest the amount of food, or too acid, causing acid eructations, 'heartburn' and palpitation.

If more than a few mouthfuls of water or fluid is drunk during a meal, the gastric juice becomes too diluted, and digestion is delayed. Water should therefore not be drunk ***within half an hour of a meal.*** Alcohol and chills may cause an outpouring of mucus from the stomach glands, which impedes the action of the gastric juice on the food. The results of all this are, that the food remains too long in the stomach, ferments there, and sets up irritation before passing on into the intestines.

Directly it leaves the stomach it meets the *bile* poured out from the liver, which is useful for further digestion of the food, prevents it from fermenting, and acts as an aperient.

A congested torpid liver from want of exercise will provide too little bile—and constipation results, while too free a secretion of bile from faulty diet or other reasons, will cause diarrhœa and jaundice. In some

people the liver is naturally torpid, and requires stimulation by plenty of exercise and hot baths, and relieving by light easily digested food.

The final digestion occurs in the *intestines*, in which also constant rotatory movements take place. They both secrete a digestive juice and also absorb the completely digested food (chyle), which is taken up by the blood vessels, and distributed to the body. All refuse from the food, and indigestible fibres, remain in the lower bowel, to be evacuated at least once a day.

From the above description we may gather how to correct and prevent indigestion.

(1.) The food must be slowly eaten and masticated; half to three-quarters of an hour should be spent on each meal.

(2.) If the stomach is weak, the meals should be taken at long intervals of five to six hours, so as to allow the stomach to entirely clear itself of food and also have some hours' rest. Large meals should not be eaten.

(3.) Never eat when tired. A short rest both before and after a meal will allow the vital powers to be concentrated upon the digestion.

(4.) Exercise improves the muscular tone of the stomach and promotes the flow of the digestive juices.

(5.) Chills should be avoided. The abdominal belt, warm woollen underclothing and stockings do much to improve weak digestion.

(6.) All food should be eaten warm, not cold; hot water between meals promotes circulation of the digestive organs.

(7.) The food should be easy of digestion—sugar, potatoes, pastry, sweet cakes, and new bread, beef,

hard-boiled eggs are all best avoided. Also meat baked or fried, overcooked or reheated. Fresh meat may be eaten once a day. Milk should be drunk always diluted with boiled water, soda-water, barley-water or lime-water. Strong tea is very deleterious. Distilled water only should be drunk if digestion is very weak, and in India should be always given to young children.

(8.) In acidity and flatulence, a teaspoonful or two of glycerine gives relief, or sucking a tabloid of "soda-mint" just before meals. Fifteen grains of bicarbonate of soda with a tablespoonful of water may be taken in the same way a quarter of an hour before eating; or 15 drops of dilute hydrochloric acid in a little water, half an hour before food.

(9.) Care must be taken to ensure a daily evacuation of the waste products from the bowels; by exercise, variety of diet, appropriate food, and very mild laxatives. Enemas are very useful, when a block has occurred. Strong purgatives should *never* be used.

In an Indian household, much indigestion, constipation and flatulence is caused by want of care and hurry in preparing the 'roti' which is the staple food at most meals. This requires to be made and well kneaded some 1½ hours before it is made up into chapattis and cooked, otherwise it is most indigestible. Raw fruit and raw vegetables should never be eaten when fasting, or in any large quantity. When eaten alone, with perhaps a long drink of cold water, they constantly cause colic and indigestion. Stewed fruits, the milk foods, such as 'dalya,' 'sooji' and rice cooked in milk would make a pleasing variety from the too highly spiced vegetable food, and dry rice and 'roti,' usually eaten by both children and adults.

CHAPTER VI.

MANAGEMENT OF THE SICK AND THE APPLICATION OF REMEDIES.

The Sick-room—Baths—Fomentations—Enemas—The Diet of the Sick—Food recipes for Invalids—Disinfection and Disinfectants.

MOST women in India are called upon at some time to nurse the sick, whether it be children or others, and valuable lives may be lost owing to mistakes made through ignorance of the principles of nursing.

THE SICK-ROOM.

This should be thoroughly clean, airy and bright, if possible admitting the sunlight freely when required.

The fresh outside air should enter *directly*, not merely through another room, or through a bath-room, as so often is the case in an Indian house.

All carpets, dhurries and unnecessary furniture should be removed, and curtains taken down from the doors and windows. Light is a powerful curative agent in

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The burning of charcoal stoves or "angitis" in a sick-room pollutes the air and is most unhealthy. If warmth is needed, it can always be supplied by hot water bottles in the bed of the patient. All cooking too should be done in another room or in the open air.

If light and air cannot enter the sick-room freely, two or three small window spaces can easily be opened up near the roof of the room, and some wire-netting gauze nailed over the space.

Fluids should never be poured on to the floor to run out into a 'nabdán' or 'naund' in the road. These are mere poison-traps which are rarely cleaned by the road mehters and foul gases continually return from them into the room.

All fluid refuse of a house or discharges from the sick should be collected in tin or iron pails and carried right away from the house at least twice a day.

disease, and instead of carefully excluding it from the sick-room, it should be welcomed.

The patient's bed can be so turned that he does not face the window. The *middle* of the room is the best place for it, and draughts may easily be prevented by arranging a screen as required.

The healthy should never sleep in the same room with the sick; indeed, the crowding up of bedrooms with several healthy people is itself a cause of disease.

Cleanliness is most essential in the sick-room; the floor and all furnishings must daily be wiped over with a damp cloth, to remove dust and germs. Any small mats left on the floor can daily be taken out and aired.

The bed too should have a clean mattress and bedding, which must be frequently changed. All soiled linen and excretions should be removed at once from the room, and thrown into a bath of disinfectant or of plain water. They should never be even temporarily thrown on the floor.

Every day the invalid should be washed all over with warm water and soap. The skin is specially active in many diseases, and if neglected will soon get clogged up with the products of disease.

When very weak, the limbs and other parts of the body should be washed and dried separately, or half the body washed at one time and the rest later in the day.

BATHS.

In fever cases *cold water baths* are more refreshing to the sick, unless forbidden by the doctor. The whole body can be sponged over with cold water, the

patient lying on a Mackintosh sheet. Then the skin is quickly dried with a soft towel, and the sheet is only left on as a covering.

Children suffering from high fever should be gently lowered, lying upon a sheet, into a tub of warm water at about 100°F. Cold water, or small lumps of ice, should be added to the water until the thermometer in it reaches about 80°F. The patient must be taken out of the bath in about 10 or 15 minutes, quickly dried, and a little sweet oil rubbed into the skin under the bed coverings, which in all cases of fever should be light and porous.

For adults, the *wet pack* is easier to apply than the cold bath, and it acts quite as satisfactorily in reducing fever and does not disturb the patient. He lies on a blanket, and towels wrung out in tepid or cold water are laid upon the naked body. As the last one is laid upon the legs and feet, the first one over the chest is replaced by a fresh wet towel and so on for 20 minutes or so, according to the doctor's orders. Where the fever is not high, and does not need to be rapidly reduced, it is sufficient to wrap the patient in a wet sheet and cover him up with a warm blanket for half an hour or so.

Warm baths are useful in soothing delirium and pain, particularly colic or spasms of the bowels, and convulsions in children.

A warm bath should show a temperature of 98° to 100°F., but a *hot bath* at 105° to 107°F. is often ordered by the doctor. The patient is put into a tub of hot water for about three to five minutes. The water should be deep enough to cover the body.

When ordered for exhausted patients, or for collapse and convulsive diseases of children, one teaspoonful of mustard may be added to each pint of hot water.

FOMENTATIONS.

Fomentations are another form of water application, useful in allaying pain and reducing inflammation. They may be applied either hot or cold.

Hot fomentations consist of two or three thicknesses of flannel wrung out in a basin of hot water, not warmer than can be borne by the hand. Quickly applied to the part, and covered over with a piece of waterproof or a double thickness of towel, they quickly relieve pain or spasms. A teaspoonful of turpentine added to each pint of hot water adds to the efficacy; or one poppy head with seeds may be steeped for half an hour in each pint of the boiling water, and used as a hot fomentation in the same way.

Another piece of flannel should be ready soaking in the hot water, and every five minutes the fresh piece should be wrung out, and applied afresh to the part. Such fomentations can be applied continuously for one or two hours, after which the skin should be dried, and a warmed piece of dry flannel bandaged on.

Cold fomentation—in which cold water replaces the hot—is a soothing application at the commencement of inflammations, or for sprains and local injuries.

Cold antiseptic "dressings" or fomentations are sometimes used for open wounds or ulcers.

Boracic Acid Lotion.—One teaspoonful to the pint of hot water makes a useful lotion either for washing out the bowel, or applied externally. A soft rag is boiled, and then dipped in the lotion and applied to the sore—

covered with a piece of oiled silk or protective covering. This acts as a poultice to cleanse runnings, sores or abscesses. Tincture of iodine or alum may be used externally in the same way.

Linseed Poultices.—Made by stirring boiling water on to the ground linseed, which is thin spread as a thick paste on to a piece of flannel. When cooled down so as to be just comfortably hot, lay on the skin with nothing in between, and bandage on. Rice, flour or bran may be used in the same way, and a little mustard stirred into a poultice increases its efficacy for relieving pain or congestion. The poultice should be changed every twenty minutes or half an hour, and not allowed to get cold or dry on the skin.

For Burns.—A paste made of bicarbonate of soda and water, if applied at once and covered over with cotton wool, will relieve the pain instantly.

Castor Oil Emulsion is made by rubbing together gum acacia, 3 drachms; powdered sugar, 3 drachms; a few drops of oil of peppermint, with 6 teaspoonfuls of water. Into this, one ounce of castor oil is slowly mixed, and 2 ounces more of water is added. One-half teaspoonful of this mixture every two or four hours is useful in acute diarrhœa of children.

Sometimes water, warm or cold, is used for washing out the bowels and other internal passages.

ENEMAS.

Enemas or injections into the bowel are useful, both for constipation and for dysenteric diarrhœa.

They may be administered either from a fountain can of water placed at some height, with a rubber tubing attached, or by a Higginson enema syringe.

For self-administration, the fountain can should be raised about two feet above the patient, who lies flat on the bed with the head low, and a towel under the buttocks. A "rectal nozzle," to be obtained from any chemist, is then attached to the rubber tubing from the can, in which 1½ pints of warm water has been previously poured, mixed with soapsuds, olive oil, boracic acid or any other special application required.

The nozzle of the douche can should be oiled, and is gently and slowly introduced into the bowel passage for about two inches; the fingers meanwhile compress the rubber tube to control the flow. About one pint only should be allowed gradually to enter the rectum, and should be retained for ten minutes.

If Higginson's syringe is used, a basin of warm water is brought close up to the patient, who lies on the left side with the knees drawn up. To fill the syringe, keep both ends under water and squeeze the bulb once. The white bone nozzle at one end is then to be fully inserted into the passage, while the other end remains entirely under the water in the basin.

The free hand now gently squeezes the bulb in the middle of the syringe, frequent pauses being made. If given very slowly, no pain or discomfort will be caused. About ten or twelve squeezes to the bulb will be sufficient to inject a pint of the water.

For the purpose of relieving deep pain and congestion the water should be quite hot; for constipation and softening hard masses in the bowels, warm water with soapsuds or olive oil are best. A small enema of *cold* or tepid water is useful for fever, piles, and as a tonic to a sluggish bowel.

Turpentine enema is given to relieve a painful over-distended abdomen. One ounce of turpentine is mixed well with four ounces of olive oil, and then stirred up in a pint of warm soap and water

Starch enemata are made by mixing two teaspoonfuls of best starch into a paste with *cold* water and pouring ten ounces of *boiling* water upon it. Twenty drops of Laudanum may be mixed with the starch in some cases, if ordered.

In children, only small amounts of fluid can be injected into the bowel. A child under one year can retain only 1½ to 2 ounces, but after this age, the amount may be increased by one ounce for every year of age.

Nutrient enemas are often ordered in cases of persistent vomiting, or where food is not digested. They consist of yolk of egg and milk, soup and arrow-root, or other ingredients, and should always be predigested by adding five or ten drops of pepsin and of hydrochloric acid to the warmed mixture. After standing for an hour, a little bicarbonate of soda is stirred in, until effervescence ceases. Only 3 or 4 ounces should be injected into the bowel about every five or six hours.

The bowel must be washed out previously with plenty of warm water.

Oil Baths.—In many cases of sleeplessness and nervous disorders olive oil may be rubbed well into the skin of the whole body. The patient lies on a warm blanket, which is wrapt round him while the rubbing goes on underneath it. The oil not only soothes the nerves, but is also a *food*, and in cases of malnutrition

after enteric and other diseases, should be a part of the daily routine after the warm bath.

THE DIET OF THE SICK.

The feeding of the patient is of more importance than medical treatment, and minute directions should always be obtained and taken down *in writing* about each individual case. It is not the amount of food he is able to swallow, but what he digests and absorbs that does him good.

In some cases, as in simple fevers with vomiting, and the acute bowel complaints of children, the stomach needs an entire rest, and *no food must be given by the mouth.* But in long exhausting illnesses in which the blood is poisoned, frequent feeding with the appropriate foods is a necessity to preserve life. Such patients have no reserve power and little digestive energy, so they need to be fed with small amounts of digestible food at very short intervals in the day, and once or twice at least *in the night.*

Some general rules are given below as a guide in the feeding of the sick :—

1. Simple fluid food is usually best, given warm or hot where there is exhaustion, cold when there is a tendency to hæmorrhage.

2. All fluids should be tasted before being offered to the patient, to ensure their not being too hot or otherwise unsuitable.

3. Fixed measured amounts should be given perfectly regularly at intervals, as ordered by the doctor. If without such instructions, in very bad cases of exhaustive diseases, one teaspoonful should be given every half hour, or two teaspoonfuls every hour. All

cases of severe illness need food at least *every two hours*. In that case, an adult needs two ounces at a time, and a child half to one ounce of concentrated nourishment every two hours.

4. If a patient refuses food, he should be asked to name something else that he would prefer, and if not injurious, he may be given it. Food that is agreeable to the palate is always better digested than any other. But persuasion and firmness is needed where all food is refused, and forcible feeding has sometimes to be resorted to with children.

5. Food refused by a patient should never be left in the room, but should be thrown away, and fresh prepared, if it could not be administered at the right time. Milk must never stand in a sick room, as it rapidly absorbs germs and deteriorates.

6. Alcoholic stimulants should never be given in illness except by orders of the medical attendant. Then they should not be administered alone, but always with food of some kind.

7. Milk undiluted is not easily digested in disease. In bowel complaints, the less milk taken the better, as it is usually deleterious, except in small quantities *well diluted*. Good substitutes for milk in these cases are—whey, rice-water, raw meat juice, white of egg, and bread jelly, either alone or combined in various ways. *Cream* is more easily digested than milk, and may be added to some of the above with advantage.

8. Milk and other food that is vomited will often be digested "if iced" before being given to the patient. In fevers and all other complaints, plenty of cold water may be drunk throughout the day, as long as too much is not taken at one time. In profound exhaustion

or diarrhœa, *hot* water may be substituted for cold. Water must never be withheld from a sick person, as it will not only sustain and refresh the system, but compensates for the lack of food.

9. Patients who are really ill should never be raised, or sit up, to take food; they may faint or die of heart failure. A feeding cup must be procured, and all food administered from it, or a spoon may be used.

FOOD RECIPES FOR INVALIDS.

White Wine Whey.—Take half a pint of fresh cold milk and bring it to the boil. When boiling, pour in one wineglassful of sherry. Stir while boiling for three minutes. Set it aside to cool and strain off the curds. Add a little sugar if required. The dose for an adult is two or three ounces every four hours, mixed with cream or barley water if required.

For a child under one year, one tablespoonful (½ an ounce) may be given in the same way every three or four hours. If cream be added, the proportion should always be one part of cream to seven of whey. A tablespoonful of "rennet" may be used in place of sherry.

Barley Water.—Stand two teaspoonfuls of best pearl barley in one pint of water for half an hour. Boil for twenty minutes, strain off the barley through a piece of muslin, and keep in a cool place. It should be made fresh every morning, and the barley requires to be well washed to begin with.

Raw Meat Juice.—One pound of the best fresh rump steak is cut into fine mince. Add two or three ounces of cold water, with ten drops of dilute hydrochloric acid

and a pinch of salt. Let it stand for one hour, occasionally stirring the mass. Strain through muslin.

This juice does not keep more than three or four hours, and should not be made at all in the hottest weather. "Valentine's Raw Meat Juice" is then a good substitute, as it keeps for a day or two if standing always on ice.

Peptonized Milk.—Add half a pint of cold water to one pint of fresh new milk. Add one Fairchild's peptonizing powder, or two teaspoonfuls of Benger's Liquor "Pepticus," and 20 grains of bicarbonate of soda. Stand the mixture, after stirring, in a bowl of hot water for twenty minutes.

It is now ready for use, or may be quickly boiled up for two minutes if it is to be kept for any length of time before using. The milk, if boiled after mixing, and not allowed to stand, is *half peptonized*, and free from all taste.

Bread Jelly.—Take a thick slice of old dry bread, about four ounces in weight. Let it soak in a basin of cold water for six or eight hours. Squeeze out the water and boil the pulp in a pint of fresh cold water for one and-a-half hours. Put the gruel through a sieve or muslin. When cold, a jelly is formed which may be administered mixed with cream, raw meat juice or milk (peptonized).

This is a most useful food for adults after serious diseases like enteric, and should be the first solid food to be given them.

Chicken or Mutton Broth.—Cut up the meat into small pieces and pour one pint of cold water over it in a jar or jug. Seal up the jar with paste, and stand it in a saucepan of boiling water for an hour or two. Strain

off the soup through muslin. One pound of mutton, or one whole chicken, should produce two small cups of the broth, which is useful in diarrhœa or serious fevers. For children, two or three teaspoonfuls every hour or so is sufficient. Adults can drink the small cupful gradually.

Rice Water.—One heaped up tablespoonful of cleaned best rice should be boiled in one pint of water for at least twenty minutes. Strain off the water through muslin. It can be flavoured with lemon or sugar to taste, and is most nourishing where solid food cannot be taken, in diarrhœa, or as a drink in fevers.

Oatmeal water.—To one tablespoonful of best Scotch oatmeal add a pint of cold water. Simmer slowly on the fire for one hour. Strain and add sufficient cold water to make a pint. Flavour with salt or lemon. A good drink if there is no looseness of the bowels. Cream may be added if desired.

Lime Water.—Put one ounce of slaked lime into a big bottle, and pour four pints of cold boiled water in it. Allow it to stand for five or six hours. Then filter off the water and keep in stoppered bottles. Used to dilute milk in bowel diseases of adults and children. One tablespoonful may be added to each eight ounces of milk for children; for adults, milk and lime water in equal parts is useful in enteric fever.

Brandy and Egg Mixture.—Rub the yolks of two eggs with about a quarter of an ounce of sugar. Add to this, two ounces of brandy and two ounces of cinnamon water. Shake all up well together. One-half to two spoonfuls of this mixture may be given every hour or more, to collapsed and exhausted patients and children.

Albuminized Milk.—The whites of two eggs are shaken up thoroughly with a pint of warm milk. One to two tablespoonfuls for children, and two or three ounces for adults every hour or two hours.

Albuminized Water.—The whites of two freshly laid eggs must be dissolved by gentle stirring in one pint of cold water. A little salt to flavour, or "milk sugar." For children or adults who reject all other food, this is an excellent food, and quickly absorbed from the stomach.

It can be added to baby's bottles in place of plain water, or to milk for sick adults.

Gelatine Solution.—One teaspoonful of good gelatine or isinglass, is allowed to stand for three hours in four ounces of water in a cup. Stand the cup in a saucepan of boiling water till all is dissolved. One to four teaspoonfuls may be added to milk to render it more digestible to adults and children.

DISINFECTION AND DISINFECTANTS.

The infectious diseases are those that are capable of being spread by the living germs given off from the bodies of those who are ill. These germs are given off from the skin of the patient, or from his mouth (vomit), bowels, and urine, or by the expectoration from his lungs.

We can best fight such diseases by killing the poisonous germs *in the body of the sick man*, as by drugs, or the injection of serums. But we have also to kill the germs *as they leave the body*, and when they have infected the air, walls, furniture and clothing in the sick-room. The substances used to kill

germs outside the body of the patient are called *disinfectants*.

1. First, the disinfection of the body of the patient. In skin eruptions like small-pox or measles, the body can be daily washed with warm water containing soapsuds, and gently dried with soft rags. Then carbolic oil, made by mixing thoroughly one drachm of liquid carbolic acid with five ounces of olive or sweet oil—is applied to the whole body.

To disinfect the discharges from the mouth and bowels, they should be received into vessels containing strong phenyle, or sulphate of iron ["Hira-kasis" of the Bazaar] in the proportion of one ounce with a pint of water. They are always to be removed at once to a distance, and burnt by being thrown on to a hot wood fire; or they may be mixed with one pound (half a seer) of quicklime, and buried at least three feet deep at a distance from any dwelling.

Izal, diluted with water, is also a valuable disinfectant for this purpose. In cholera, dysentery and enteric fever, the careful disinfection of all discharges for several weeks or even months, would do much to stamp out these diseases in India.

Before joining the healthy, a convalescent patient should have a soap and water bath, and thereafter apply to the whole body a lotion of *Creolin* or *Izal*, one ounce of either to the gallon of water. Soap is an excellent disinfectant from the amount of alkali it contains, and should be freely used for disinfecting the hands of the attendants or nurses in an infectious case. After touching a patient, or the discharges and vessels, the hands should be washed for five minutes in soap

and warm water, and then soaked in a lotion containing *perchloride of mercury*, of which soluble tabloids are always obtainable at the chemist's.

This lotion, 1 in 2000 parts of perchloride of mercury, is useful to wash out all the drinking or food vessels used by the patient—as carbolic preparations leave a taste behind.

2. *The clothing* in all these diseases needs disinfecting. Mattresses and bedding should be *burnt* (not given away). All other clothing near the patient should at once be put to soak in a tub containing perchloride of mercury lotion, 1 in 2000, or carbolic acid one ounce to each pint of water. After soaking for several hours they are to be wrung out in clean water, and then *boiled* for at least half an hour.

A big wood fire can be lighted, and a tub of hot water and lotion put on to boil. The clothes are dropped in and boiled. They are then to be dried for hours in the hot sun.

3. *Rooms.*—To disinfect the room of a patient, both quicklime and sulphur are required. For a small room 4 to 6 lbs. of quicklime are placed in an earthen vessel or "gumla" with a wide mouth.

On the floor of the room put also a bath tub containing three or four inches of water, and place in the middle of it three or four bricks. One pound of sulphur (half a seer) is put on the bricks. Now pour a little spirits of wine over the sulphur, and some water from a jug over the quicklime. Dense fumes of steam will rise from the lime, and by moistening the air of the room will cause the sulphur to act more effectually. Drop a live coal upon the sulphur and

immediately close up the room, so that the fumes cannot get out for some hours. Then open up all the doors and windows again to let in sun and air.

The walls should be scraped and re-colour-washed, or if cemented can be wiped down with cloths wrung out in the perchloride of mercury lotion.

The furniture should be wiped all over with damp cloths. Soap and water is the best disinfectant for the wood-work or furnishings of the sick-room.

The best disinfectant for the *dead body* is strong phenyle or carbolic acid, one ounce in 15 of water to wash the body. A little charcoal may be placed in the coffin.

In all diseases, absolute cleanliness both of the patient and his surroundings, plenty of space, and fresh air from *outside*, are of more value than anything else in curing the patient, and preventing the spread of the disease. The strengths of some of the common disinfectants as mentioned above are :—

1. *Carbolic Acid Lotion.*—One ounce in 20 of hot water; also "Carbolic oil," 1 ounce in 40 of sweet oil.

2. *Phenyle.*—One ounce in 15 of water, for disinfecting urine and discharges, and vessels used to receive them in.

3. *Izal.*—One part of izal in 40 of water, or one ounce to the quart of water, for the same purpose. For the disinfectant bath, or for washing the hands, half an ounce to the gallon (4 seers) of water is sufficient.

4. *Cyllin.*—One part of cyllin in one hundred of water for disinfecting the discharges.—For the bath and other purposes, two teaspoonfuls to the gallon of water.

5. *Creolin* is used in exactly the same way.

6. *Perchloride of Mercury* (Corrosive Sublimate) is used in the strength of 1 in 1000 or 2000 parts. If the powder is obtained, it should be used in the proportions of one drachm to six pints of water, in which it dissolves by the aid of a few teaspoonfuls of glycerine. This lotion is also useful applied as a "poultice," to clean foul ulcers or wounds. This is *a strong poison*, and should only be prepared just before using, and the powder kept locked up.

7. *Sulphate of Iron* ("Hira-kasis") can always be obtained in the bazaars. It is used as a strong infectant for discharges or drains, one ounce in a pint of water, or one pound (half a seer) in four quarts of water to clean latrines.

8. *Sulphur and Quicklime* (bleaching powder) give off fumes. Quicklime mixed with liquids rapidly destroys any solid it is in contact with. One ounce of it may be added to the big tub full of boiling water when disinfecting clothing—to assist the purification.

9. *Condy's Fluid.*—One teaspoonful to the pint, is useful for washing the mouth, or as a gargle.

10. *Solution of Lead Acetate* may be made into a lotion by dissolving half an ounce of the solution in one pint of water, with which it should be thoroughly shaken. As an application to irritable piles, skin, and lining membranes it is most useful. This also is a strong poison and must be stored in a locked cupboard.

11. *Glycerine and Borax.*—Made by dissovling ten grains of borax in one ounce of boiling glycerine. This is a soothing application and disinfectant, for irritated lining membranes of the body and mouth.

12. *Glycerine and Tannin.*—This is also made by dissolving ten grains of tannic acid in one ounce of boiling glycerine. Useful to contract and heal sores, or ulcers in the mouth, and elsewhere.

13. *Soothing Powder* for irritable skin. Equal parts of oxide of zinc, boracic acid and starch powder, mixed thoroughly together and dusted on to the skin of adults or children ; used in pruritis, prickly heat and eczema.

14. *Friar's Balsam.*—A healing application for painful ulcers, if applied thickly with wool and allowed to dry on the skin.

PART II.

THE PREVENTION OF WOMEN'S DISEASES.

CHAPTER I.

Preliminary observations—Structure and use of female reproductive organs—Crowding of the Pelvis—Ovulation and Menstruation.

A RIGHT knowledge of the structure and functions of the generative organs is an absolute necessity if we are to understand how the abnormal external conditions of tropical life and climate affect them.

True it is that sex is not a merely local matter, but manifests itself strongly throughout every part of the organism. Though it is centralized in the special organs, these are bound up in the closest possible relation, both nervously and physically, with the rest of the body, so that when they suffer, the whole frame is apt to suffer also.

It is for lack of right education in these matters that many a young wife loses her vigorous physical health, and becomes a semi-invalid and unfit for motherhood. Sir James Paget has said that invalidism is (with rare exceptions) "a carefully cultivated condition."

We shall be more ready to acknowledge the truth of this saying, if we bear in mind the opposite, that perfect health may be cultivated and attained to under the most unpromising conditions. It is largely a matter of the *will* rightly directed.

Marriage and motherhood in India necessarily mean greater strain and responsibilities, more anxious cares, than in the natural surroundings of a temperate climate.

Yet by commonsense, serenity and determination, woman has been able to surmount every disadvantage and encircle her unborn child with the best possible influences—giving it perhaps a more valuable heritage of self-control and mental vigour than it would have received in easier circumstances.

STRUCTURE OF SPECIAL ORGANS.

The trunk of the body may be considered as divided into three cavities. The upper one (thorax), containing the heart and lungs, is entirely shut off from the middle or abdominal cavity, which contains the organs of nutrition, the stomach, liver and bowels.

The lowest or pelvic cavity is bounded by bony walls on all sides, forming a broad flat basin at the lower part of the trunk, called the *pelvis*. This basin is not shut off from the abdomen in any way. Within the pelvis are found the organs of elimination, the rectum behind and slightly to the left, the bladder in front. Between these two lie the organs of reproduction, the womb (or uterus), ovaries, and fallopian tubes. The external parts are called the *vulva*. Between the inlet to the rectum, and the inlet to the bladder (urethra), is a narrow tube, called the *vagina* opening at the vulva. This inlet is about 4—6 inches long, and is quite closed at the upper end by the mouth of the womb or uterus.

This is a small pear-shaped organ suspended in the pelvis, with the mouth looking downwards. It is held in place by broad ligaments which extend from its sides outwards to the sides of the bony pelvis, and also by delicate ligaments running from front to back. These ligaments do not fix the uterus firmly in one position,

but merely help to support it while it is in the pelvis, so that it can easily rise into the abdominal cavity during pregnancy.

The cavities of both uterus and vagina are lined by a fine skin containing glands, called *mucous membrane*. On the back of each broad ligament is found a small oval organ called an *ovary*, in which the female eggs, or ova, form and ripen from puberty onwards. Two narrow tubes which run one on each side from the uterus towards the ovaries, are called *fallopian tubes*.

RESULTS OF PELVIC PRESSURE.

There is ample room for all these organs in the pelvis, provided the space is not encroached upon by the abdominal organs sagging down from above into the pelvis. Again, owing to ignorance of these matters and carelessness in personal hygiene, the rectum and bladder, which are capable of very great distension, are often allowed to remain overdistended, and the result is an overcrowding of the pelvic organs. The uterus from its central position and flexibility suffers most. The pressure on the blood vessels interferes with proper circulation through the organs, which become overfull or congested with blood, and it is then an easy matter for the heavy congested uterus to be tilted backwards, or forced downwards, by the pressure of a full rectum and bowels from above.

Sometimes this malposition rights itself when the pressure is removed. But if for any reason, congestion persists, and the misplacement is long maintained, the uterus gets fixed in its wrong position by adhesions to the neighbouring organs, and permanent displacement results.

Again, in the abdominal cavity also, there is usually ample room and support for all the organs. But in a hot climate, the muscular walls of the abdomen tend to get relaxed and weakened, while chronic dyspepsia and overdistension of the intestines from irritating food increase the pressure from within. Weakness left from the overdistension during pregnancy, or faulty tight clothing, are other causes why the walls of the abdomen fail to properly support their contents.

Thus, pressure is exerted in a downward direction, the viscera are lower than they should be and crowd down upon the contents of the pelvis. In this way the ills already existing there are much aggravated. It is plain, therefore, that the pelvic organs can be permanently injured by faulty personal hygiene, especially by overdistension of the bowels and rectum in chronic constipation, and lack of strengthening exercise.

OVULATION AND MENSTRUATION.

Turning back now to the ovaries which contain the female ova, we find that directly an egg has reached a certain stage of ripeness it passes out of the ovary, and into the fallopian tube of that side. It is then conducted into the uterus by the fallopian tube, and thence, if not fertilized, it passes out into the vagina and is lost sight of. This passing of a ripe egg from the ovary into the uterus is called *ovulation*. It takes several days, and the process is repeated normally every 28 days. Meanwhile, during ovulation, changes take place in the uterus, which becomes congested and heavier, while its mucous lining also is swollen and distended with blood. When the egg passes away, the fine distended blood vessels rupture and discharge

small quantities of blood for three or four days. This is what constitutes *menstruation.*

A natural process of this kind should take place entirely *without pain,* and under quite normal conditions this is the case.

Indeed, some scientists have maintained that a woman ought to feel more energetic and vigorous at that time than throughout the rest of the month, and true it is that the days just before and after a "period" are the most fruitful in a woman's life.

Most women in civilized countries, however, perhaps owing to the artificial and unnatural conditions of their lives, feel some lassitude and discomfort during menstruation. Actual pain points to something radically wrong, either locally or in the general health.

The menses appear at puberty any time between the eleventh and fifteenth year, and show that ovulation has commenced and that the girl is capable of conceiving. But this does not mean that her organization is now complete. It is not till eight or ten years later that the bony pelvis is fully developed or properly shaped to allow of the passage of a child. Nor is the general constitution settled and full growth attained before the age of 23.

Menstruation may in some cases be delayed till the age of 20 or 23, without any harm to the system resulting. On the contrary, late menstruation is an advantage, because it gives the child a chance of attaining her growth without the nervous and physical strain that commencing ovulation seems to involve.

The early appearance of menses in Indian girls is largely due to the unnatural and unwholesome

atmosphere, both physical and mental, in which their days are passed. From the time she can speak, the girl's mind is constantly directed to sex matters, and even deliberate stimulation of the organs is practised in many cases.

Among European girls, the reading of sensational novels may act in the same direction; the longer a girl can be kept a child the better. It will readily be understood that marriage and child-bearing, before the body has reached its full development, must injure the constitution, and that feeble and diseased children will usually result. Statistics show that the lives of such young mothers, as well of the children, are considerably shortened and the health shattered by so unnatural a practice.

Besides being painless, menstruation should occur at *regular* intervals of 28 days, or other fixed time, and should only last 3—4 days. Individuals vary greatly in all these points, so that a fixed rule cannot be laid down for all. The *amount* lost should not exceed 4—6 ounces of blood altogether; a very copious flow or a prolonged menstrual period is rarely beneficial or to be desired. Indeed, among savage races living continently, the flow and general disturbances are merely trifling and a matter of a few hours.

The *colour* should be dark red, and the discharge should be thick, but with no clots or large shreds. In anæmic women it will often be pale and watery, or else too profuse and bright red.

The *nervous system* is usually hypersensitive during a period, and in women who do not habitually practise self-control, hysterical symptoms may cause distress

not only to the individual herself, but to those around her. The uterus is for a day or two before and during menstruation, swollen and heavier than usual. It is hence more apt to become displaced and permanently congested by faulty hygiene at this time.

Therefore all violent exercise, such as dancing and riding, and tight compression by clothing, must be avoided, and also the thorough evacuation of the bowels secured at this time. It is a good rule even where the bowels are naturally regular, to take a dose of mineral waters, or citrate of magnesia, always once a month, just at the time the period is expected. But if these precautions are nccessary under normal conditions, they are more needful when living continually in a tropical climate.

Here, chills and iced drinks, and alcohol in any form, should be carefully avoided. The warm bath must not be omitted, indeed is more valuable than at other times, both for cleanliness and the relief of the internal congestion. If a full bath causes faintness, a warm sponge-bath may be substituted. If there is much weight and discomfort in the pelvis, the daily rest of *one* hour may be extended to *two*, but exercise is both needful and beneficial in moderation. During the menstrual period all excitement should be avoided, and the temper carefully controlled.

It is important while taking all wise precautions, for a woman to avoid coddling herself during this period; plenty of work and occupation for the mind is best. No medicines need to be taken during a period; the best medicine to secure healthy menstruation is an out-of-door life, plenty of exercise,

and the regulation of the conditions of living so as to avoid strain of all kinds. Here as in everything the *mind* and *will* can powerfully influence the body.

CHAPTER II.

ABNORMAL MENSTRUATION.

Irregular Menses—Profuse Menstruation—Ceasing of the Menses—Painful Menstruation—Climacteric or Menopause.

MENSTRUATION is, unfortunately, not always normally performed. This function of the body, like others, is greatly affected by climate and environment Thus, we too often see the debility, dyspepsia and increased nervous susceptibility of India, having their effect in disturbing the regularity, the character and amount of the flow.

IRREGULAR MENSES.

It is not uncommon to find that the change to a new climate on first reaching India, results in irregularity, or even entire cessation of the flow. After a few months, it may return and gradually become regular, thus re-establishing itself normally without any harm resulting. If no discomfort or headache accompany such irregularity, there is no need for any treatment; patience and a healthy out-door life will set the matter right without interference, which is best avoided.

But it is a more serious matter, if the flow varies each month, sometimes lasting a day, at others one

week, and appearing when least expected, or perhaps on the slightest exertion.

When accompanied by dragging pains, neuralgias in different parts of the body, or by white discharge from the passages, this condition must not be neglected.

It is often brought about by want of care, and exposure to chills, during a period, but may also result from debility and frequent child-bearing, or from too great demands being made upon the organs.

Treatment.—In all such cases the chief requisite is to build up the system by a generous diet, and plenty of gentle exercise and fresh air. Tonics are generally needed, especially for anæmic or delicate constitutions. The best are those containing iron and arsenic, or the iron and quinine citrate powder, of which 3—5 grains in water three times a day is most useful in malarious districts.

If there is much pain during the periods and in the intervals, and a good deal of white or yellow discharge from the vagina (called *Leucorrhœa*) much benefit will be found from using a vaginal injection of water containing Tincture of Iodine in the proportion of one teaspoonful to the pint of hot water. The best method of administering a vaginal injection or 'douche' is as follows :—

The first requisite is an enamel or glass can, to the lower end of which an india-rubber tube some two yards long is attached. The can should be capable of holding at least four pints of water, and there should be some means by which it can be hung upon a nail in the wall. Rubber douche bags are not to be recommended, as they are difficult to keep clean. A glass

nozzle should be obtained from any good chemist, and no other used. When the can is filled with sterilized water and lotion, the nozzle, previously well boiled for five minutes, is attached to the lower end of the rubber tubing. The can is now raised to a height of two or three feet, or hung upon a nail on the wall, and the whole apparatus is ready for use.

It must be remembered that warming the douche water does not free it from germs. The only way to properly sterilize the water for use is by *prolonged boiling*. This should be done beforehand, and the water can then be stored to cool in a clean jug or ewer, covered over with a folded towel to keep out the dust. Unsterilized water should never be used to make lotions with; the mere addition of medicaments does not free the water from noxious germs, which should never come in contact with these delicate surfaces. Without these precautions a vaginal douche may be productive of more harm than good. The douche is best administered in the recumbent position, with a bed-bath and mackintosh under the hips. The nozzle should be gently inserted for about two inches only, towards the back of the passage.

Should all these means fail to soon relieve the irregularity of menses and other symptoms, a specialist should be consulted on the first opportunity.

PROFUSE MENSTRUATION.

This is the term used for describing increased flow of blood during the period. It is frequently associated with some irregularity of time. In the plethoric or full-blooded woman, a profuse flow each month is often a natural relief to the system. Where the general health

remains good, and no weakness is felt after the period is over, no anxiety therefore need be felt. The profusion, in fact, can be measured by the condition of each individual.

But in India it is most commonly found in those suffering from debility induced by the climate, or as a symptom of serious pelvic disease, displacements of the uterus, and congestion. It also results from mismanaged confinements and neglected miscarriages. The use o means for preventing conception is also a frequent cause of this condition, by encouraging and keeping up congestion of the organs, and irritating the surfaces. In weakly or debilitated women not only is the hæmorrhage sometimes very severe, but large clots may be passed with painful cramps.

Treatment.—This is a very serious condition, and perfect rest in bed is the first requisite. Cold or iced compresses, consisting of folded towels, wrung out in iced water, may be constantly applied over the lower abdomen and between the thighs, to control the bleeding. The head and shoulders should be lower than the pelvis; it is advisable to raise the lower end of the bed about one foot higher than the head, and the position of lying flat on the back should be carefully maintained. Light food is needed. Fluids should be all given tepid or cold, and all stimulants carefully avoided. If constipated, an enema of soap and water, or a small dose of castor oil may be given. Plenty of fresh air and light should be admitted to the room. In the absence of a doctor, a teaspoonful of liquid extract of ergot may be taken every four hours, in a little water.

Between the attacks of hæmorrhage, the general system should be built up in every way possible.

Plenty of gentle exercise and fresh air, with nourishing food, and large quantities of milk—say three pints a day—are useful.

Perfect rest of the organs is a necessity, and separate rooms should be occupied for a period of some months. About 24 hours before the period is expected, all exercise should cease, and a purgative should be taken. Iron tonics, and a little Port wine or Burgundy to improve the appetite, may be taken during the intervals.

If there is any leucorrhœa, or sense of weight and pain in the pelvis, during the intervals between the hæmorrhages, a vaginal douche of hot water (containing one teaspoonful of alum to the pint) should be used twice a day. But in these cases, the moment it is possible, skilled medical advice should be obtained. A slight operation is frequently all that is needed to entirely cure this condition at once.

CEASING OF THE MENSES.

Such a condition may come on either suddenly or gradually.

In the former case, this may show debility or serious disease, or else the onset of the menopause or climacteric. Sudden cessation of the flow, or a check to it while it is going on, is produced usually by chills, or malarial

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The Indian woman, deprived of fresh air and exercise, constantly suffers from anæmia and scanty menses. Too often she calls in the native *Dai* who introduces unclean drugs into the vagina and does great harm.

Gymnastics and Breathing Exercises to improve the general health, and plenty of good light food are far safer methods of treatment. Drugs are useless or dangerous when all the surroundings of a patient are unhealthy.

fever, or even by sudden shock to the system. Every young wife must ascertain that she is not pregnant and be certain of this, before resorting to measures for bringing on the menses.

In any case, no medicines should ever be taken for this purpose. If a cold bath or chill is considered to be the cause, a hot hip bath, in which half-an-hour can be spent if the body is covered over with blankets, and a mustard plaster over the bowels, are simple and usually effectual remedies. An enema of hot water will aid the re-establishing of the flow. In weakly women, plenty of nourishing light food and milk, out-of-door games and riding are important. Tonics containing iron and arsenic, or Blaud's pills, should be taken steadily, for months, and a little change to the sea or hills may be tried.

PAINFUL MENSTRUATION.

When a woman suffers much pain during the menses, it is usually a sign of some pelvic disorder. On the other hand, it is sometimes merely due to spasms causing intense neuralgic pain in the nerves of the womb. It does not seem to depend upon the amount of the menses, as it occurs when they are scanty and profuse, and the passage of clots or of shreds of membrane may cause agonizing pain in some women.

If such acute pain is attended by vomiting and fainting, and if there is any pain, neuralgia and indigestion during the intervals, medical advice must be sought.

Treatment.—Meanwhile during the attack a mustard plaster or hot fomentation may be applied to the abdomen. Hot drinks of tea, lemon juice with hot water, or ginger wine may give relief. Brandy or other

alcoholic drinks should not be resorted to, as they only increase the pain and congestion. Ten grains of Antipyrine two or three times a day is very useful. It should be taken with hot coffee or tea—and will often relieve the pain at once.

When the menses begin with acute pain, a hot "Sitz bath" may be taken for two or three nights before the time they are expected. The temperature of the water should be as hot as possible, 117°F.—120°F., and it should reach well up to the waist. The water can be kept hot for 15 to 20 minutes by adding boiling water from a kettle.

The recumbent posture in bed is usually most comforting in these cases. But when the pain is acute and comes on in paroxysms, it is sometimes found impossible to keep quiet, and walking about has the advantage of distracting the attention somewhat.

Purgatives and enemas taken just before and during the period are of great benefit. One ounce of Carlsbad or Rochelle salts may be used, or a pill of Cascara Sagrada each morning.

In healthy strong girls some cases of purely neuralgic pain yield more quickly to cold applications, or an ice bag applied over the lower abdomen.

If the flow is scanty, three grains of sulphate of quinine can be taken three times a day just before and during the period. It relieves the pain, and overcomes the spasm or contraction which is causing it. Some of the worst cases of painful menstruation are relieved by a slight operation for enlarging the passage.

One form of menstrual pain is connected with the ovaries. It comes on before the flow is established, and

the pain runs down the groins and thighs, or through to the back. There will be vomiting and headache, and possibly some pain in passing urine. The headache and pain in one or both groins may continue through part or the whole of the month.

Such a condition sometimes exists in otherwise healthy girls from puberty, or it results from a difficult confinement in weakly women. However, the commonest causes are the entrance of infective germs, and the practice of means for preventing conception, particularly that of incomplete union. German scientists make the observation that in the partial marriage relation the intense nervous excitement and congestion of the organs is not satisfied physiologically, and the result is that they and the whole system suffer from shock.

Sleeplessness and nervous depression accompany such ovarian trouble, and may cause the condition of nervous debility called *Neurasthenia*, which if untreated may lead to chronic invalidism. It is of the first importance to avoid all the immediate causes of ovarian disease ;—complete physiological rest for the organs is important until they have become less irritable.

Hot iodine douches, and blisters over the ovaries, will relieve the congestion. It is well to remain quietly in bed for two or three days. A blister for this purpose should be about one-and-a-half inches square, and may be applied just a little above the middle of each groin when lying straight.

When the pain is acute, one or two doses of chlorodyne, 30 drops in a little water, may be taken at the beginning of the period.

The effect of mind and will on menstrual pain is very marked, when no real pelvic disease exists. To be always directing the anxious care and thought to this trouble is the way to increase it. Plenty of out-door exercise, and days full of engrossing occupation are good preventives of menstrual pain.

CLIMACTERIC OR MENOPAUSE.

The complete cessation of the menses which takes place normally at 45 or 50 marks a crisis in a woman's life. Civilization tends to throw the climacteric later, and cold countries have the effect of delaying both the onset and cessation of menstruation. It is now that ovulation ceases, and the ovaries and uterus shrink and atrophy. These changes may be accompanied by disagreeable ailments which are supposed to be a necessary accompaniment of the climacteric.

But if the life has been a healthful one, and if the organs involved have fulfilled their function of reproduction without hindrance or abuse, the transition from the maternal period should be accompanied by little disturbance.

Among the Jews, women cease menstruating very early and with little disturbance of the system. No doubt this may be traced to the fact that the laws of their race ensure a woman long periods of physiological rest, during the whole of pregnancy and for at least one or two years after it. So she can bear her numerous children without strain.

Usually, however, a long list of symptoms can be enumerated which are attributed to this cause.

Nervous troubles are the most prominent, and owing to the disturbance of the circulation flushings,

giddiness, and palpitation are common. There is irregularity and some diminution in the menstrual flow, with possibly occasional hæmorrhages and some pain in the back and bowels from pelvic congestion.

Hot vaginal douches, and daily warm Sitz baths relieve this congestion. Purgatives also are useful; the mineral salts, Carlsbad, or Rochelle salts, can be taken every other day in hot water on waking in the morning. If profuse perspiration is troublesome, certain drugs will relieve it.

A mixture of 10 grains of bromide of ammonium with 10 drops of tincture of belladonna in a wineglass of water twice a day is very useful to relieve the nervous symptoms and sleeplessness. Alcohol should not be taken, as it increases the congestion and the symptoms which result from it. At this time, a woman needs to be relieved of all strain both of body and mind. It is well to aim at a serene faith in the power of nature to accomplish painlessly her physiological processes when not hindered. No drugs should be taken for these ailments without consultation with a doctor.

CHAPTER III.

SOME COMMON DISEASES OF WOMEN AND THEIR TREATMENT.

Leucorrhœa, or "The Whites"—Congestion and Inflammation of the Womb—Displacements of the Womb—Itching of the Vulva—Bladder Troubles.

"THE WHITES" (LEUCORRHŒA).

THIS is a discharge from the passages consisting of the increased secretion from the glands which are found in the lining membranes of the vagina and uterus.

These secrete mucus always in small quantity to keep the surfaces moist and healthy. But when owing to a chill, the entrance of germs, or other irritating causes, the lining membrane becomes congested and unhealthy, the mucus is poured out in large quantity and a catarrh results. This exactly corresponds to what happens in the nose when a chill has been taken. Often a natural increase of this mucous secretion takes place just before and after menstruation, and also as a substitute for the menses during the "change of life," or menopause.

Again, general debility and poverty of blood are responsible for leucorrhœa, which is sometimes found in delicate young girls and children. In these cases all that is necessary is to improve the general health and correct faulty personal habits. Plenty of milk and light nourishing food, tonics, and a life in the fresh air will soon work a cure.

It is a more serious matter, however, when the discharge goes on profusely all through the month, is offensive, yellow-like matter, or tinged with blood.

This is a sign of congestion or inflammation of the womb and passages, and requires immediate atten-

tion. Many mothers suffer from a severe leucorrhœa after confinement, especially where regular antiseptic douching of the parts has not been carried out during the lying-in period.

Treatment.—Rest on the bed with the pelvis raised is the first requisite, and if there is any pain and irritation of the parts, the bed should be kept to for a few days.

All causes of irritation, such as the introduction of devices to prevent conception, must be given up.

A daily vaginal douche of hot water, containing one teaspoonful of alum to the pint, may be taken both morning and evening.

If there is much irritation and burning of the parts, it is best to use in the douche a tablespoonful of Lysol or Creolin to each pint of the water, in place of the alum.

The bowels need to be kept open, and good food, light meats, fish, and milk puddings must be taken. There is always some serious cause for this form of discharge, and a doctor should be consulted on the first opportunity.

CONGESTION AND INFLAMMATION OF THE WOMB.

The signs of this condition are pains in the pelvis and abdomen, running down the thighs—with perhaps irritation of the bladder and more or less hæmorrhage. If the pain is acute, the patient must get straight to bed, and apply hot fomentations externally. Very hot vaginal douches containing a teaspoonful of boracic acid to the pint will help to relieve the pain till medical advice can be obtained. Such sudden attacks are often caused by getting up too soon after delivery, by the entrance of infective germs, and attempts at pre-

natal infanticide. If untreated, a condition of chronic congestion of the organs is left when the acute symptoms subside.

A persistent aching dragging sensation is then felt in the pelvis, with profuse leucorrhœa or purulent discharge; an abscess may even form and discharge itself from the vagina or rectum. In this chronic condition the menstrual periods become very irregular, are either scanty, or very profuse, and may drag on at intervals all through the month.

The general health surely suffers; pains in the back, dyspepsia and nervous depression complete the miserable picture, and induce a condition of semi-invalidism which may last long.

Treatment.—In the treatment of pelvic congestion, it is very necessary to remove all causes of irritation of the organs.

Separate beds must be occupied and perfect rest ensured for some weeks or months.

Hot vaginal douches containing a teaspoonful of tincture of Iodine to each pint of water should be administered for about 20 minutes night and morning. Once daily a hot Sitz bath with the water at 120°F. may be taken, preferably at night to induce sleep. The bowels may be cleared by taking laxative mineral waters in large draughts of hot water, and by the regular use of the hot water enema every other morning.

The introduction of small plugs, or pledgets of wool soaked in glycerine preparations, does much good in reducing the swelling and pain. Not all women, however, find themselves able to apply the plugs properly, in which case a trained nurse may be needed.

A piece of antiseptic cotton-wool about 4 to 5 inches square is laid on a saucer and one or two teaspoonfuls of pure glycerine poured upon it. Fold in the corners, and compress the mass gently till it is well saturated with the glycerine. Then a fine piece of clean string is tied round the middle of the wool, leaving the ends long for withdrawing the plug. When introducing it, the fingers should push the plug well backwards and upwards as far as they will reach, to near the top of the vagina. It may be left in position for 12 hours, when it can be withdrawn by the string, and after a douche a fresh plug may be applied. These glycerine plugs frequently cause a profuse discharge of watery fluid from the swollen parts which greatly relieves the congestion. In place of the plain glycerine, boracic glycerine may be used on the plugs, where there is much pain and irritation of the parts and profuse leucorrhœa.

The use of an electric battery is very valuable in causing absorption of the congestion, but it should only be used under medical orders or harm may result. When the uterus remains congested, it is overfull of slowly moving blood and heavier than usual. Hence, congestion favours displacement of the womb, which falls either backwards or downwards out of its rightful position in the pelvis, owing to its ligaments not being capable of supporting it in this condition. The best prevention of such a complication is *rest*.

For several hours daily the woman suffering from chronic pelvic ailments should rest lying *on her face* on a bed or sofa. Avoid lying on the back as far as possible, and have the feet of the bed raised.

When pain has subsided, a certain amount of exercise should be taken, gentle walks and rides only; standing and overfatigue must be avoided.

The special exercises for strengthening the pelvic and abdominal muscles are also of use. They are described at the end of Part II of this book.

Pregnancy and a well-managed confinement and 'lying-in' will sometimes complete the cure of such chronic pelvic ailments, but medical advice should be sought in this matter, or miscarriage may result with all its evil consequences.

DISPLACEMENTS OF THE WOMB.

It has been explained how easily the womb may fall downwards or backwards, or be pushed out of its natural position in the pelvis when heavier than normal. Such "falling of the womb" is favoured by the relaxation and weakness of all its ligaments, and of the muscles in the "floor" of the pelvis, induced by the heat and general debility in India. The uterus then sinks down and may even protrude from the vagina. This is called *prolapse* of the womb. It may occur suddenly from a strain when the organ is heavier than normal. Relaxation and stretching of the passages by childbirth has the same effect especially if the mother gets up too soon, while the uterus is large and heavy.

It is not uncommon to find some amount of prolapse in the early months of pregnancy, as the softening of the tissues which occurs at this time prevents their giving sufficient support to the enlarged womb, while it is still in the pelvis. This form of prolapse may cause no discomfort except when it is directly responsible for excessive vomiting; but it requires medical treatment,

and the introduction of a pessary or support, to prevent miscarriage from occurring.

Ordinarily, however, prolapse of the womb causes very disagreeable symptoms, such as aching and dragging sensations in the pelvis, increased with walking and standing; there is often irritation of the bladder or difficulty in passing urine.

Leucorrhœa and dyspepsia often accompany this condition, and nervous symptoms may also cause great misery and depression.

Treatment.—The pains and other symptoms are all relieved by lying down, so that nature herself indicates the first essential of treatment, which is perfect *rest* in bed. The pelvis should be raised higher than the body, and if there is any discharge, a plug of glycerine made as large as possible should be used to support the womb. A daily hot water enema to cleanse the bowels, and hot douches of iodine to relieve any congestion, are also beneficial. In slight degrees of prolapse from strain, or from suddenly getting up a short time after confinement, such treatment will soon relieve the symptoms and put matters right.

More acute and persistent pain usually results from a displacement backwards or retroversion. This form of displacement is caused often by a neglected congestion, or by a mismanaged miscarriage and confinement, and if medical treatment be long delayed, adhesions or bands will form, anchoring the womb in its false position, and cure is then difficult.

There may be no signs at all of a backward displacement, and yet it will prevent pregnancy from occurring. Usually, however, all the symptoms of pelvic congestion

are present; pains in the back, irregular and profuse menstruation, are frequently troublesome.

The same treatment is needed as for pelvic congestion; rest for some hours daily, preferably on the face, plugs of wool and glycerine, and daily hot douches and enemas. The advice of a specialist should be obtained as soon as possible; electricity and all measures for improving the circulation and nutrition are of great importance in helping to restore the organs to their healthy condition. In both forms of displacement, some kind of support or 'pessary' may be needed, as a temporary measure while the tissues regain their 'tone' The final cure, however, is often wrought by pregnancy and a prolonged lying-in after the child is born.

ITCHING OF THE VULVA (PRURITIS).

This ailment is very common in the tropics, and may cause much nervous irritability and misery if it is not immediately treated. Very frequently a neglected discharge ("whites") from the vagina will set up an irritable condition of the external parts, which soon become inflamed and the seat of an irruption from much scratching. This irritation is also one of the common complaints of pregnancy, and of the menopause.

Treatment.—When associated with pelvic disease and leucorrhœa, a lotion containing one ounce of borax to the pint of warm water should be used, both to wash the parts and for injection into the vagina. Plugs of belladonna and glycerine, or borax and glycerine, may also be inserted into the vagina.

In bad cases which have been neglected, some stronger lotion is needed. Here the solution of subacetate of

lead, one ounce in a pint of warm water, may be used in the same way four or five times a day, and then a dusting powder containing one of the preparations of bismuth should be applied. "Dermatol" is one of the best of these.

Tepid Sitz baths containing a tablespoonful of Tidman's Sea-salt, or even of common salt, to the pint of water, are useful, and may be used for 10 minutes twice a day.

When there is much inflammation and irritation, a few days in bed are an essential part of the cure. The diet should be light, and the bowels kept open by laxative mineral waters, or Epsom salts.

In gouty people, it is not uncommon for a gouty eczema to appear solely in those parts, and it may become most intractable. Medicines will be required to clear the blood, and a doctor must be consulted without loss of time. Meanwhile the above treatment should be followed, but the lotions used for laving the parts should consist of tarry compounds, such as *creolin*, or *liquor carbonis detergens*—one teaspoonful to the pint of warm water.

Threadworms in the bowel are said to cause this disagreeable ailment both in adults and children.

BLADDER TROUBLES.

These affections may cause a great deal of misery, and should never be neglected for a day. The commonest are inflammation and irritability of the organ, but the one leads on to the other. Oft-times as the result of a chill—when neither the abdominal belt nor closed knickers are worn—the bladder becomes irritated and congested.

The urine is passed with slight pain, very frequently, in small quantities at a time. There is usually no fever with this condition, but a sense of weight and discomfort in the pelvis which drives the sufferer to bed. Such symptoms also may be a sign of pelvic disease, or of displacements of the womb, and in pregnancy the pressure of the large uterus not unfrequently irritates the bladder in this way. Gouty and rheumatic people are also liable to such attacks.

When there is great pain, fever, tenderness and burning, with the passage of a thick deposit and mucus in the urine, no time should be lost in sending for the doctor. Often the pain extends to the bowels and cause straining at stool.

Treatment.—In any case, *rest in bed* is required first of all. A hot water bottle may be kept over the abdomen and very hot hip bath taken each night. The *diet* should be entirely fluid—milk, thin gruels and cornflour and soups. Plenty of barley water and weak tea should be drunk throughout the day. At the very commencement of the attack, a dose of castor oil and a *daily enema* are needed, to ensure thorough cleansing of the bowels. If far from medical aid, in these severe cases, ten grains of *Salol* powder may be taken in a little milk three times a day. When there is much restlessness and sleeplessness, ten grains of Dover's powder taken at night is very soothing.

In cases where irritability of the bladder accompany pelvic disease, and there is a profuse white discharge from the vagina, hot douches containing *alum*, one teaspoonful to the pint, should be used twice daily, and the cause also discovered and removed.

CHAPTER IV.

NERVOUS EXHAUSTION (NEURASTHENIA) AND THE RESULTS OF PELVIC DISEASE.

General surroundings—Mental Hygiene—Rest—Clothing—Bowels —Exercise and Massage—Special Exercises.

It cannot be said that this is, strictly speaking, a woman's ailment, for it is unfortunately a frequent result of overstrain in men. But it is so much more common in women and so constantly associated with pelvic disorders, especially as a result of pregnancy, that it may well be mentioned here. Nervous exhaustion is not to be confounded with hysteria, though the one ailment often complicates the other, and many symptoms are common to both.

There seem to be two classes of women who are liable to this complaint, those who have too many interests and those who have too few. The former are thin, practical and highly strung, brimming over with mental and physical activity, and consumed with an earnest desire to regenerate the universe. In the end, however, they only succeed in exhausting their own nervous energy. The other class are often indolent and weakly, apt to think too much about themselves, and with few mental resources. If in a position where they need not exert themselves, they are apt to sink into a condition of nervous apathy and depression, or hysteria.

In both cases the *symptoms* of the disease are much the same, but they vary in different individuals. Sleeplessness, headaches and depression, peculiar pains and nervous sensations are common. There is often nausea

and vomiting at the sight of food;—flatulence and nervous dyspepsia may be very troublesome and prevent proper nourishment from being taken even when there is an appetite for it. When kept quite quiet in bed, such patients are always more comfortable and will digest food that in the erect position causes vomiting

In most cases the patients are worried and anxious without cause, and filled with useless fears for themselves and others dear to them. Too often indeed such a sufferer makes excessive demands upon the patience of those around her. As O. Wendall Holmes describes it, "she is a vampire who sucks the blood of the healthy people about her."

Now, all these signs of nervous debility may be associated with pelvic disease, or there may be no apparent cause except inherited weakness and bad training. It has been said that woman's life is a history of disease. But it can more truly be said that it is a life of physiological disturbance and unrest from puberty to the climacteric. As ovulation and menstruation, pregnancy, labour and lactation succeed one another, and are repeated periodically, is it wonderful if in these complicated physical activities a weak nervous system gets early exhausted?

In India, it is not uncommon to find some of these signs of profound nervous debility even after a first confinement, possibly as a result of the strain of marriage combined with all the change of life and surroundings which it involves in a tropical country. They are less common after later confinements, except in the case of mothers who have been exhausted by too rapid child-bearing.

Neurasthenia is not a new disease, it has always existed, and so have its immediate causes. Yet going a little deeper into the matter, we see some remote causes for the greater frequency of the disease in women of late years. There is no doubt that education begun at a very early age, together with the increased demands of modern society, life, and travel, render the nervous system more susceptible and irritable when it is subjected to any strain. As civilization progresses, the 'struggle for life' is harder, while both child-bearing and child-rearing seem to cost more to the mother, whose cares and anxieties increase with the higher value attached to child-life and health. In this keener and tenderer motherhood, she is apt to exhaust herself in devotion to the interests of the child.

Then, too, many young wives step into the unknown sphere of marriage knowing little of its demands or dangers, and only learn by the sad experience of shattered nerves and health, the results of attempting to fulfil the duties of marriage and motherhood without previous study or preparation for them.

When this condition of nervous exhaustion has become established, the remedy lies in refusing to fix the attention on local pains and symptoms, while determining in all ways to improve the surroundings and general nutrition of the body, and to correct defective habits of life.

In these days we are apt to neglect all remedies which are not of a tangible nature, yet the extravagant claims of the faithhealers and 'mystics' of the dark ages, and of their successors,—the modern miracle worker, Christian scientists, and charlatans, may well

teach us the transcendent power of *mind* in modifying the human organism and curing disease.

In analysing their striking cures, we can see the supreme power of conviction and 'self-suggestion' in controlling the great nerve centres, and acting through them upon the nervous and nutritive activities of the body. In spite of such demonstrations, we have not yet fathomed the influence of mind in the prevention and cure of disease. When such influence comes from without, by a strong mind concentrating itself on the weaker one, there is little chance of strengthening the feeble will permanently. Whereas the firm resolve to attain to perfect physical and mental health by commonsense means, acts in itself as a tonic to the nervous system.

It is not always possible or necessary for a woman with an enfeebled constitution and chronic ailments to obtain skilled treatment at the hands of doctors and nurses. In the section which follows I have confined myself to describing the means of recovery which any woman of ordinary intelligence may carry out for herself in her own home. If suffering from chronic pelvic ailments also, she must of course use all the local means of cure suggested for the various women's complaints.

It will be noticed that most of the measures recommended in this chapter are in themselves largely directed to *prevent* disease. The best way often of curing a disease is to remove the cause and improve the surrounding conditions, so that Dame Nature gets fair play. Such treatment should be at least given a full trial, for medicines are useless without appropriate conditions for their application, and can often be dispensed with in this disease.

GENERAL SURROUNDINGS.

Improvement of the general conditions of life and surroundings is the first requisite; if these are thoroughly depressing and unhealthy, all other means used to regain the lost strength will be vitiated. If the house is dark, depressing and unhealthy, it should be changed for a bright and airy one, well drained, and standing high, away from damp ground. All the points discussed in Part I of this book must be carefully attended to; the kitchen, the drinking-water and conservancy should be reorganized if necessary. If the climate is a malarious and unhealthy one, a change away to a hill station or elsewhere may be necessary.

MENTAL HYGIENE.

This stands next. Worry, anxiety and mental pain exhaust the vitality and deteriorate the blood, and the same results from anger and malevolent emotions. Self-control exercised daily and hourly in little matters will soon have its reward. Some causes for worry are imaginary or removable, and a little quiet thought and determination, or consultation with others suffice to remove them. Those anxieties which are inevitable must for a time be put on one side; by turning the mind resolutely away from them with hope and courage for the future, they can be made to fall into the background for the present. The very effort to do this will strengthen the weak will and nerves, and the help of friends will surely be forthcoming in this matter and should not be despised. A deep religious faith has carried many women safely through dangers and anxieties, which, without it, would have crushed and overwhelmed them.

REST.

The daily rest of one hour recommended under "Personal Hygiene" in Part I, Chapter II, will need to be extended to several hours a day. At first the whole day must be spent lying down quietly in the open air, if possible, with short intervals only for meals, or exercises, and baths.

As strength returns, rest is best taken in separate periods of two hours, with a little exercise in the fresh air between each period. If there is displacement of the uterus or pelvic disease, rest should be taken on the face, with the foot of the bed raised.

Physiological rest for the organs is needed till health returns. If necessary, separate bedrooms must be occupied by husband and wife.

All means used to prevent conception are harmful and irritating in this condition and must be entirely abandoned. Whether it be the use of greasy "pessaries" swarming with germs, the forcible injection of cold unsterilized water holding in solution strong drugs, or the employment of mechanical devices impossible to boil or sterilize, all are dangerous.

The everlasting recurrent congestions due to this cause and to menstruation combined, without the natural rest of pregnancy and lactation, tend in the end to promote disease of the organs, and irreparable mischief often results. Nature judges most truly what is the best method of obtaining her objects, and to thwart her means disaster. In this case her object is reproduction, and the only safe rule to be guided by is the *willingness that pregnancy should result.*

In this way only is the possible child not defrauded of its rightful heritage and welcome to life. In

justice to the children, no pregnancy should ever be accidental.

Where limitation is necessary, there remains the "sterile week," and douching with warm sterilized water containing in solution Boracic acid, Lysol or Creolin.

The "sterile week" is said to be that dating from fourteen days after one menstrual period has ceased till five days before the next. During this period pregnancy is unlikely to occur.

While on this subject it may be well to briefly indicate the occasions when union should not take place:

When the mother is fatigued, ailing and unwilling for it.

When any pain or leucorrhœa results.

As far as possible during pregnancy and lactation.

When the possible child might not receive the most favourable inheritance from both parents. It is impossible to calculate the harm inflicted on a child by a disturbed mental condition of the mother at the time that pregnancy begins, and throughout its course. During nursing also the mother's milk may be seriously affected by anything which induces nervous exhaustion.

CLOTHING.

This should receive some care, and dresses must be altered, if necessary, to fulfil the requirements of health. Ordinary corsets should be discarded, and the various kinds of "rational" stays substituted for them. Skirts should be slung from the shoulders, or attached by buttons to the bodice, and no waist-

bands, fastenings, or constriction of any kind tolerated at the waist. The "Empire" style of gown is most suitable and comfortable, or blouses and skirts can be sewn together, and a loose fitting jacket worn over both. Woollen combination garments are essential, and the less of cotton under-garments or linen worn at all, the better.

DIET.

The regulation of the diet is a very important matter, and depends a good deal on the amount of indigestion that is present. If nausea and vomiting present difficulties in feeding, liquid food only—such as milk with raw eggs, Mellin's Food, or the peptonized foods—must first be tried. These should be taken in small quantities regularly, every two hours; lying down for half an hour before and after eating will aid digestion. Gradually, as strength improves, solids must be added; boiled bread and milk, boiled fish, chicken purée. As a rule, what the patient fancies—if not indigestible—will suit her best.

When there is no trouble in eating, plenty of variety is advisable, and meals should still be frequent, but milk and cream and light nourishing food only taken. Porridge one morning and stewed fruit the next, will be more effectual in acting on the bowels than the same thing daily. Much sugar and syrup with fruits should be avoided as leading to fermentation in the stomach and indigestion.

N. B.—If dyspeptic symptoms are troublesome, the treatment given under "Dyspepsia" in Part I should be followed.

BOWELS.

The bowels are usually very costive and the diet must be regulated to relieve this (see "Constipation"). It is necessary to procure a thorough evacuation daily, and for this purpose an enema, at first daily, and later, on alternate mornings, may be needed. In pelvic disorders, the free lavement of the rectum by hot water is most effectual, and benefits the congestion. Or a small quantity of glycerine (½—1 oz.) if injected into the rectum by a glass or ball rubber syringe, will suffice in many other cases, where the constipation is not very troublesome. Purgatives should be avoided unless ordered.

EXERCISE AND MASSAGE.

When suffering from exhaustion and the results of pelvic disease, any severe or active exercise is often both harmful and productive of pain. At first, therefore, it may be advisable only to take passive exercise in the form of slow movements of the limbs when lying down, and rubbing or massage.

For various reasons it is not in the power of most women in India to obtain the services of a skilled *Masseuse*, nor are they really necessary. For all practical purposes the efforts of an ayah, who will thoroughly squeeze and compress the muscles of the limbs and whole trunk between her hands and the bones lying beneath, may be quite as effectual if less pleasant; the circulation and nutrition of the parts will be gradually improved thereby till more active exercise becomes possible. These "rubbings" should be done gently at first while the nerves are sensitive. Twice a day, at about 10 A.M. and bedtime, is sufficiently

frequent. If they greatly irritate and annoy the patient, it is hardly likely that they will do much good. Muscles should always be rubbed from below up.

In addition, the abdomen should be gently lifted and rubbed in an upward direction for a few minutes, while lying with the pelvis raised on a pillow. This helps to give tone to the soft muscular walls of the abdomen, which, when weakened by debility or other causes, yield to pressure from within, and permit the viscera to sink down, so favouring constipation, pelvic congestion and displacements of the womb.

A well-adjusted flannel *abdominal bandage* applied when lying down with raised hips, will add to the comfort in this condition, and should be worn all day.

SPECIAL EXERCISES.

But greater permanent benefit will result from *special exercises* directed to strengthen the abdominal and pelvic muscles and relieve congestion. They have the additional advantage of improving the appetite and general nutrition of the body. It should not be thought that these special exercises can be a real substitute for walks, games or riding in the fresh air; but when these are not permissible, or cannot be indulged in during the heat without exhaustion, their value in improving tone cannot be gainsaid. In pelvic disorders and displacement of the womb, when other exercise is harmful, these do much to restore general health and to strengthen the organs.

In the description which follows it must be taken for granted that these exercises may be performed two to three times a day.

(1). In loose clothing, preferably a woollen combination garment.

(2). In an airy, light, well-ventilated room, or open verandah, and never immediately after eating and a full meal.

(3). They should at first be performed quietly and easily twice a day, and only gradually be increased in force and frequency, as the muscles and ligaments gain strength.

I.

Sit in an easy position on a straight chair, with arms raised above the head. Draw the breath through the nose and hold it, while bringing the arms down steadily to the sides without bending the elbows. Repeat several times. Keep the chin held well up.

II.

Stand erect. Clasp the hands behind the neck and bend slowly forward till the head is on a level with the waist. Count ten, then straighten up. Repeat.

III.

Stand erect with chest thrown forward. Take a deep breath, and while holding it, pat the lungs and ribs with palms of hands not too gently. Take another deep breath, touching shoulders with tips of fingers. Bring the elbows slowly together to meet in front of chest. Then throw the elbows back and up, still touching shoulders. Let the breath out slowly. Repeat.

IV.

Clasp hands behind the back, then slowly bend the body forwards and sideways at the waist, as far as it will go. Again, twist the body gently round first

to the right, then to the left as far as possible, breathing deeply. Repeat this exercise kneeling on a cushion.

V.

Lie on the back, keep feet down (by placing them under a chest of drawers if any undue strain is felt) and rise into a sitting position. Drop slowly back, and repeat three times.

VI.

Lie on the floor, stretch the arms over the head till the hands touch the floor. Clench the fists. Take a deep breath and hold it.

Now raise the arms slowly in front of the body and stretch them down at the sides; at the same time raise the head well off the floor. Raise arms again above head, and sink back on the floor. Let out the breath. Repeat exercises several times.

VII.

Fold arms behind back, hold chin up. Breathe slowly and deeply. Don't bend the knees. Then hold out your left leg with foot raised as much as possible while you count five. Repeat with right foot, and also lying flat on the back.

VIII.

Kneel erect on cushion with the knees well apart. Stretch arms upwards by the sides of the head. Bend trunk slowly *backward* as far as possible while you count four. Then return and bend *forward* as far as possible, keeping knees and feet firm.

IX.

Lie on the face, bend knees and swing the feet from right to left. Next, rest on elbows and raise central

part of the trunk slowly so that the weight all rests on elbows and toes.

X.

Lie on the back on floor. Draw feet up as close to the body as possible. Lift the body till it is entirely supported by the feet and shoulders. Lower slowly to original position. Rest, and then repeat for 10 to 15 minutes.

XI.

Slip from the bed head first and face downwards, until the head and arms up to the elbows rest on the floor. Retain this position as long as possible. Then slip on to the floor.

XII.

Knee Chest position.—(Continue for five minutes three to four times a day.) This position is most useful in relieving pelvic pressure due to displacements, pregnancy or congestion.

Kneel on floor or unyielding surface. Lay side of face down on the support while bringing the shoulder of the same side as near knees as possible. Remain thus for 10 to 15 minutes.

N. B.—The last four exercises are specially suitable for use if there is chronic pelvic trouble, and in the early months of pregnancy.

The Indian lady, who suffers almost universally from backache, pelvic troubles and anæmia due to indolence, and want of fresh air and exercise, should study this chapter carefully. Though her clothing is wisely loose, it is not warm enough to protect her from chills and rheumatic influences owing to which she is frequently crippled at an early age. Far off is the day, alas, which will see the Indian girl free to spend every unoccupied moment in healthy out-of-door games like her English sister. The only hope for the

CHAPTER V.

STERILITY: ITS CAUSES AND REMEDY.

If many people are anxious to avoid having children, there are some who are just as desirous of having them when they have been denied them. In this matter there are many influences acting which we do not understand. But it is as well to study such causes of sterility as we know of, so that we may correct the conditions which have led to them.

1. In the first place, sterility is not always the fault of the wife; there may be some inherent *incompatibility* in the two natures.

2. Again, a marriage in which there is great disparity of *age* (as a young wife with an old husband) is very commonly a barren one. *Age* is altogether an important factor, as well-proved statistics show; thus we find that of healthy wives married at 16 years of age only 12·9 per cent. will have children. Each year upwards from this age, the percentage increases, till at 24 years of age (the best time for marriage) there are

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future lies with the women who will have the courage of their opinions on initiating reforms in all these matters.

Till that day comes, exercises in the house, or games of "Catch-the-ball" or "Battle-door and Shuttle-cock" on the roofs and verandahs may be of some advantage. For the ***backache*** which is so common, rubbings along the spine from below up, and a daily douche of cold salt water poured from a height over the spine after a hot bath, are useful.

In the face of such facts as these (which cannot be gainsaid) the present marriage customs among both Hindus and Mahomedans are indispensable. Till they are abandoned and these lessons of the great Teacher, Nature, taken to heart, no regeneration of the race physically or otherwise is possible

90—95 per cent. who actually bear children; and in the next few years it is almost as high.

Marriages between the ages of 22 and 32 are therefore the most fruitful, and moreover the inheritance of the children will then be of the best. After 32, the percentage of fruitful marriages gradually declines till we find that of marriages contracted between 40 and 44 only 15·4 per cent. result in children being born.

3. All *unhealthy modes of life* conduce to barrenness. Indolence, luxury, and self-indulgence are potent factors, perhaps by lowering the vital force, physical and mental. If the mind and thoughts be concentrated on *self*, much nervous energy is wasted which might have been employed in conferring life. For the exercise of the creative power always involves the expenditure of much nerve force. Man has been given but a certain store of this nerve force, and if too much be expended in one direction, too little will remain for other, more important, objects.

4. Again, *overwork* and brain fag greatly diminish fertility. Here there is too much expenditure of nerve energy on worthy objects. A long and complete rest will allow the nerve force to accumulate again, and pregnancy may result. Women overwork themselves during their first year or two of married life, and waste their precious store of nerve force by indulging in recreations which do not re-create lost nerve energy in any sense of the word.

5. In this connection we may also refer to the most common cause of sterility, namely, *too frequent marital intercourse*. Reliable authorities have decided that in

normal circumstances this should not take place oftener than two or three times a month until pregnancy results. For this purpose the best time is said to be immediately before or after a menstrual period. Where there has been much greater frequency than this, and consequent waste of energy and vitality, a long rest will be required. On returning home after a long absence, the wife who has been for years sterile will often conceive at once. Therefore this course should always be tried.

6. In persistent causeless barrenness, it is well to give up all alcoholic drinks. Taken even in moderate doses habitually by women, *alcohol* sometimes appears to hinder conception, and its abandonment is followed by pregnancy.

7. *Diseases of the reproductive organs* frequently act in the same direction, though not invariably causing barrenness. Displacements of the uterus do not always result in sterility, nor does a certain amount of chronic congestion. But unfortunately the pregnancy often ends in miscarriage in these cases, and therefore is not always to be desired.

Some forms of painful and irregular menstruation and leucorrhœa will prevent conception, but as they can all be cured by proper treatment, the barrenness may be only temporary. Scanty menstruation and signs of debility and anæmia need attention, as they favour barrenness, while the infective germ diseases may also cause irremediable sterility. The correction of certain defects, impediments and malformations constantly results in the wife immediately conceiving; but skilled medical treatment for these conditions should not be too long delayed.

8. A large deposit of *fat* about the body seems to have some effect in preventing conception in otherwise healthy women.

It is as a rule the unmarried or sterile woman, not the mother of a large family, who suffers in middle life from tumours of the reproductive organs and other serious disease. Possibly their creative energy, deprived of legitimate outlet, is misapplied in these directions.

9. From all these considerations we may gather that sterility is unnatural in women, and is due usually to abnormal and unhealthy conditions, the removal of which, and obedience to the laws of righteous living, will frequently result in motherhood.

PART III.

Pregnancy and Parturition.

CHAPTER I.

Preparation for Pregnancy—Ideal Pregnancy · Heredity and the Development of the Embryo.

"A partnership with God is motherhood,
What strength, what purity, what self-control,
What love, what wisdom, should belong to her
Who helps God fashion an immortal Soul."

This thought, that preparation for parentage and motherhood is necessary, is working in many minds to-day, and may be somewhat responsible—and rightly so—for the limitation of pregnancy and childbearing so widely practised. Truly, it is well for a mother, if possible, to select the best time for assuming this duty, so that all 'accidental' and unwelcome pregnancies may be avoided.

For the unborn plead silently their right to every consideration which may ensure them the best inheritance possible, and we know not the degree to which the mental condition of a mother,—her anger, disappointment, regrets,—may influence and injure the child. The real preparation for motherhood has been going on from childhood, for it has been proved that it is the *fixed* mental and physical habits of parents, rather than transient states, that influence the child most.

It remains too for the parents to see to it that the germ plasm is of the finest quality they can give,

as well as that the training of the child before birth, during intra-uterine life, is of the best. Even where there is a bad family inheritance, it is never too late to begin to remedy defects that may injure the child, since it has been found always possible for parents to transmit to their offspring a better inheritance than they themselves received.*

If evil tendencies in a family are strong, the good ones may be made stronger, and when transmitted, they will last longer than the bad ones.

It has been beautifully said "Soul gardeners should all mothers be, that the child may have good soil in which to generate and grow during ante-natal life." And physically too, a poor soil, carefully tended, enriched and watered, will bring in a finer harvest than better soil that has been allowed to run to neglect. And so we find that it is not always the mother living in comfort and ease, indulged and shielded, who can give her child the best inheritance. But when climate and other circumstances are adverse, a mother may by taking a strong stand rise superior to them, and by the very effort transmit a valuable heritage of strength and self-control to her unborn child.

It must never be forgotten, however, that pregnancy and childbirth are natural physiological processes, and should be entirely healthful, painless and safe conditions. If a mother was desirous and ready for pregnancy, and is convinced that what is in accord with the Law of Nature must necessarily be associated with conditions of physical health, and strength, and harmony, she

* (See Contet, "La Regeneration des Familles et Races") *P. Vigot, Paris.*

is a long way on the road to enjoying an *Ideal pregnancy*.

If in addition a woman has directed her energies in past years to acquiring a fund of muscular strength and nervous stability, and has formed wise habits of life, these will ensure a happy, healthy pregnancy, and a confinement free from great suffering and danger. Of course, the expectant mother is not exempt from the usual little ills that all flesh is heir to. Yet many delicate women have been astonished to find themselves free from their usual small ailments during pregnancy, and enjoying better health than ever before.

DEVELOPMENT OF THE EMBRYO.

We learnt in Part I that ova or eggs are continually being formed in the ovaries of the woman, and that once a month at least an egg ripens and reaches the uterus. When the egg leaves the ovary on this journey, it contains within it the embryo-cell together with food for the early days of its life. From the very moment when fertilization takes place (which may be while the female egg is still on its way to the uterus) organized life begins; there is never a moment when it can be said that the ovum is not instinct with human life.

Now too, the uterus rapidly begins to prepare a suitable bed or nesting place for the little one about to be entrusted to it during nine months of its growth. The womb enlarges, its bloodvessels increase, and the lining of its cavity becomes thickened and softened so as to fold round the embryo and form a protecting membrane for it. Directly the embryo has finished its journey and settled down in these folds, it begins to draw its life from the uterus and mother's blood.

This it does first of all *directly*, by absorbing nourishment through its enclosing membranes, but later on *indirectly* through the afterbirth, or "placenta." This organ is completely formed at three months, and acts not only as a medium for the life-giving nourishment of the mother to pass to the child, but also as the lungs of the child. *The fœtus breathes through the mother's blood.* Now we can see the great importance of the mother's blood being kept pure by plenty of fresh air, and by exercise which ensures her breathing deeply.

Meanwhile the uterus grows with the growth of the fœtus. This it does not by merely distending itself; but by deposit of new substance in its walls, which become stronger and thicker. This new material has to be cast off after labour is over, and this process takes nearly two months.

The size of the embryo at the end of *one month* is about ¼ of an inch long; it is contained in an enclosing membrane which afterwards becomes greatly distended with fluid, and is known as 'the bag of waters'; the child is thus well protected from injury and from sudden changes of position by the large amount of this fluid in which it is suspended in the womb.

At three months' old, the embryo is 3 inches long and is henceforth called a 'fœtus' The sex of the child is already declared, so that there is no possibility of influencing it hereafter even by the treatment of the most expensive specialists.

At the *fifth month* the fœtus is 8—10 inches long and may be born alive, but cannot live. In this month the child's physical development is completed; after this period any 'marking' of the fœtus is impossible. The superstitions that disappointed longings, or agitation

of mind, may impress themselves from the mother upon the structure of the child in the form of skin marks or deformities, should be ignored by all wise women.

They are idle tales, unproven by statistics and unworthy of credence. On the other hand, the general nutrition and the harmonious development of the fœtus can be greatly influenced by the mother's state at this time. It has been suggested that it is principally in these later months, when the organs of sense are developing, that the perceptive and constructive powers, and the higher mental and idealistic faculties—mirthfulness, beauty, benevolence, are engrafted upon the physical organism of the child. However this may be, the mother should not neglect the judicious cultivation of the highest thoughts and ideals of life, during this time of pre-natal culture.

The uterus is now so large as to have risen out of the pelvis into the abdomen, and pressure upwards may begin to cause the mother some discomfort. This involves loosened clothing more adapted to the new conditions, for pressure of any kind injures the child, and encourages constipation, and other digestive troubles so common in pregnancy.

Movements of the fœtus usually begin to be felt at 4½ months, or they may not be felt till much later. Mothers have imagined that before the time of "quickening" there can be no life in the child, and have thought this an excuse for inducing abortion when attempts to prevent conception have failed. But we have seen that from the earliest moment when impregnation took place, living sperm-cell meeting living form-cell, new life was created. Hence, all such attempts at destruction may be described truly as "pre-natal infanticide."

Sometimes, indeed, suicide has been added to that crime, for if part of the ovum only is expelled, serious pelvic inflammation and disease may result. So very true is the saying that "none may break into the House of life and go innocent and unpunished." Yet the real crime is not always the mother's alone, and but for its consequences would seem almost excusable, where an unwilling maternity has been thrust upon her when exhausted by frequent childbearing.

When the right time comes for the child to be born, the enclosing membranes burst open and allow some fluid to escape during labour. The child is next expelled from the envelope, more waters follow, and then the placenta separates from the wall of the uterus and is expelled with the membranes. In this separation of the after-birth the large blood spaces in the wall of the womb with which it is in close connection are torn across. So some bleeding at this stage of delivery is inevitable, but normally the womb contracts down firmly at once, and so the hæmorrhage is checked.

CHAPTER II.

Duration of Pregnancy—Signs of Pregnancy—Omission of Menstrual Periods—Gastric Disturbances—Changes in the Breasts—Enlargement of the Abdomen—Irritation of the Bladder.

DURATION OF PREGNANCY.

For many reasons the exact duration of pregnancy cannot be determined with any certainty, and there is no doubt that it varies a good deal with different mothers. The normal length of time that the child remains in

utero is probably 40 weeks, or about 280 days. Only if the exact date of conception is known can a mother calculate fairly accurately the day that pregnancy will terminate.

The reasons for this uncertainty are numerous. In the first place, the only available date is usually that of the last monthly period, which for many reasons is not always reliable. Pregnancy may take place whilst a mother is nursing her last child and the periods are absent altogether, or menstruation may be habitually so irregular that a woman may have missed a period or two before becoming pregnant. Disease or debility often cause such absence of menstruation. The fact that menstruation has never taken place may not prevent a woman from becoming pregnant.

Again, the menstrual discharge not unfrequently in India appears quite normally, or else scantily, during the first month or two of pregnancy. Another difficulty in calculating when a child may be born depends on the fact that children differ in their rate of development *before* birth as they do afterwards. So we see some children born apparently fully developed before 40 weeks have elapsed, while there are a few cases of pregnancy having lasted 300 days or longer. In fact, it is often very difficult to tell a premature child by external signs, and a full-term ill-developed child may be thought premature.

The law of France allows the legitimacy of a child born 300 days after separation of the parents, and 180 days after marriage also. Another fruitful source of inaccuracy lies in the fact mentioned before, that fertilization of the female ova may take place at any time

from the close of one period till the beginning of the next, for the ovum may be impregnated while on its journey from the ovary to the uterus. This allows a margin of three weeks in which even a careful mother may be out of her reckoning.

It seems that just before the "menopause" or cessation of the menses for good, women often show a marked tendency to become pregnant after having been always sterile, or having ceased to bear children for many years.

Bearing in mind all the above sources of fallacy, one cannot help arriving at the conclusion that the precise day for pregnancy to terminate is not meant to be known. No doubt this is all for the best, as nervous mothers would perhaps look forward with dread to the fixed date, if they knew it.

To calculate the approximate date of delivery from the menstrual period is simple. Add seven days to the date when the last monthly period began, and then reckon backwards three months. If the last day of February is included in the pregnancy, then nine days should be added instead of seven.

Thus, if the last menses commenced on April 10th, add nine days, and reckon back three months to the 19th of January. This may be taken as the middle day of the week in which labour may commence. This method is simple, and more accurate than many others used. If this week is passed by, probably labour will come on two weeks later, since it is common for a woman to conceive two days *before* or one week *after* a menstrual period.

When menstruation fails as a guide for any reason, we have left the size of the womb, (which reaches the

navel at the 24th week), and the date of "quickening," which is supposed to take place at 4½ months. But this is unsatisfactory, for some mothers feel movements of the child from the third month onwards, and others do not feel them till quite late in pregnancy. The mother of many babes, who has always felt movements in one particular week, can alone rely upon her sensations in this matter.

SIGNS AND SYMPTOMS OF PREGNANCY.

There is no one sign which taken alone is sufficient to establish the fact of pregnancy, but a certain combination of symptoms taken together will point strongly to its probability, and we rely on these in coming to any conclusion as to the existence of pregnancy.

THE OMISSION OF THE MENSTRUAL PERIODS.

A healthy woman who menstruates regularly will need little to confirm it. But in India, where irregularity is more common, reliance cannot be placed on amenorrhœa taken by itself. One or two periods are sometimes missed just after marriage, and on arrival in India, and again, menstruation during the first few months of pregnancy is not so unusual as in colder climates. However, when not associated with any signs of pelvic disease, backache or pains, and when no other cause such as sudden chill can be assigned for the suppression of menses, it strongly suggests the possibility of pregnancy.

GASTRIC DISTURBANCES.

Various kinds may trouble the pregnant woman. Nausea and morning sickness are very early signs,

which may appear in the second or third week, and usually pass off by the fourth month, when the womb is rising into the abdominal cavity. On waking in the morning there may be no discomfort, but when the mother begins to move around, she gets a sudden attack of nausea followed often by the vomiting of a small amount of fluid. The sickness may pass off as the day advances, or it may return at the sight of all food, and at every meal.

This nausea is supposed to be due to nervous irritation of the stomach owing to the condition of the womb, with which it is in close nervous connection. The stomach also may show its disturbed condition by other signs, by longings for peculiar or indigestible articles of food, by distressing sensations of hunger, and so on. These fancies should on no account be gratified, for it is a great mistake to suppose that to leave them ungratified harms the child. The 'hunger' is often due to fatigue of the stomach, which in many cases can only digest a small amount of food in pregnancy.

CHANGES IN THE BREASTS.

During the second and third months of pregnancy, the breasts enlarge, and throbbing or pains may be felt in them. As the pregnancy progresses, their rapid development causes knots and lumps to form, which are often tender and sensitive. The nipples become prominent and turgid, and the circle round the base of each becomes a deep brown colour, while the 20 or 30 small points upon it, become elevated from the surface like small pimples. The ring or aureola never quite loses its deepened colour. As the breasts become larger and firmer, the blue veins are seen clearly running over their surface.

In a first pregnancy, a little moisture or clear fluid may be squeezed from the nipple in the second or third month, and milk in the later months. The presence of milk in the breasts is, however, not always due to pregnancy, and is a useless sign in those who have been bearing children. If the breasts do not thus develop, it is probable that after delivery there will be no milk for the child.

ENLARGEMENT OF THE ABDOMEN AND "QUICKENING."

There is usually no marked swelling of the abdomen till the fifth month; indeed, in the early months it may seem flatter than before, owing to sinking of the womb in the pelvis. At the sixth month or twenty-fourth week the womb should reach the navel, which now becomes more prominent than before, and projects markedly from the surface. The deep layers of the skin crack, and appear as lines on the surface, which remain even after delivery of the child, but these do no harm.

The movements of the child may sometimes be felt all through pregnancy from the third month, in a normal case. But usually they begin to be suddenly felt at about the fourth or fifth month. Life, and a certain amount of motion, is there from the first, but it is only as the fœtus becomes stronger and the uterus rises out of the pelvis, that the motions can be felt. They are—as one would expect—first felt as a feeble flutter, which grows into a stronger sensation day by day as they recur. In the later months the vigorous movements of the child may cause a good deal of pain and discomfort. Latterly the movements may not be felt at all; but this need occasion no anxiety for the child.

Other signs are often present which corroborate the likelihood of pregnancy.

IRRITATION OF THE BLADDER.

The mother may suffer greatly from irritation of the bladder in the early months, requiring to pass her urine very frequently; in the last month or two the same symptom may cause much discomfort. Or there is a tendency to feel suddenly faint and hysterical without any other reason being apparent; such nervous disturbances are quite common in this condition.

The child's heart sounds can be plainly heard after the fifth month of pregnancy, and if the physician recognizes these by listening with the ear on the mother's abdomen, no other proof of pregnancy is needed.

It is by no means uncommon for a woman to imagine herself pregnant when she is not so, particularly when the menopause is near and the periods are becoming irregular. Then all the above signs may be imitated, and only an appeal to the verdict of an experienced physician can settle the matter; an examination under chloroform may even be necessary.

CHAPTER III.

Management of Pregnancy—Diet—Clothing—Exercise and Massage—Bathing—The Bowels—The Breasts—Sleep and Rest—Mental Hygiene.

MANAGEMENT OF PREGNANCY.

FROM her marriage day onwards a wife may well be shaping her life with a view to the probable contingency

of conception and motherhood. If she has thus carefully prepared for it by study and the wise observance of hygienic laws, there will be little left to do during her pregnancy, which is naturally a healthy and happy condition.

Ordinarily, indeed, a "wise carelessness" should be the keynote for the mother's life, which in pregnancy should be lived on quite normal lines. A woman is all the better for continuing her household duties and keeping up her varied interests till the very last. A determination to ignore small ills at this time often results in their disappearing altogether from view.

Unfortunately, in our highly civilized world it is not every woman who has a sound constitution, and who can afford to despise all knowledge of the laws of health and life during this period of her history. Particularly, if the inheritance of the coming child is known to be bad in any way, the mother should recollect that much depends upon her self-management at this time. It cannot too much be insisted upon that *heredity is not fatality*. A wise writer has given the answer to the question "Who shall deliver us from our ancestors?" "Not Nature. She is inexorable. But between the unbroken law and its entailed consequences stands the mother, invested with a power that makes her either a Nemesis or a redeemer."

DIET.

The food suitable for pregnant women is a matter about which public opinion has changed much in the last few years. It is now almost universally agreed that instead of needing *more* food than normally, a good deal *less* can be assimilated, at least during the

first half of pregnancy. In this particular as in others no mistake will be made if Nature's lead is followed.

Thus we see that in the early months the appetite is often poor, the stomach is very irritable, and nausea and vomiting at the sight of food is not uncommon. If the morning meal is eaten, it often returns again; indeed, in some cases only one small meal a day can be retained during the first few months.

Yet in severe cases of vomiting it does not seem as if either the mother or the child eventually suffers. Quite the contrary, the children are often specially large and vigorous when born. Then too we have to remember the very small size of the embryo in these early months, and the slowness with which it grows (only from $\frac{1}{4}$ of an inch to 3 inches in two months), and we shall surely conclude that there is no necessity for increasing the amount of nourishment taken by the mother.

Besides, she is probably taking less vigorous physical exercise than before pregnancy, so it is the more needful not to overburden the system with food which it cannot assimilate, and which must be rejected, or else remains to cause chronic irritation and dyspepsia. We see therefore that a small amount of well-selected nutritious food, taken at regular intervals two or three times a day, is all that is needed, or that nature permits to the mother during the early half of pregnancy.

But when the uterus rises up into the abdomen, and the fœtus begins its rapid growth and development of the last part of pregnancy, we usually notice a change. The appetite improves, the nausea and vomiting cease and the mother can well digest more food than before.

When there is much indigestion, the dietary should include only the lightest food stuffs, milk and cream, oatmeal and semolina or other grains, mutton and chicken broth, rice puddings. As digestion improves, two or three meals a day of simple nourishing food may be taken; fish, eggs, vegetables and stewed fruit, or oranges and grapes, are beneficial. Meat should not be overcooked, or twice cooked up. In German Hospitals it is almost entirely withheld during the last two to three months of pregnancy, when the strain on the kidneys is great.

No food should be taken between the regular meals plenty of water may be drunk two hours after meals, but not with them. Where there are long intervals between meals in which no food can be assimilated, the mother may experience a gnawing sensation of hunger in the stomach. She should not gratify this by at once eating something, for it is often a sign of fatigue—and the food, if eaten, would only irritate the organ and set up irritation. Let her rest flat on the back for half an hour, and drink a cup of very hot water, which immediately allays the "sinking" feeling.

Self-control in this matter of the appetite and "longings" for forbidden food will reap a rich reward in giving the mother freedom from the many digestive disorders, vomiting, flatulence and "heartburn," from which so many women suffer. The indulgence of a large appetite, and of these "fancies," will only increase the desire more and more until permanent harm has been done to the digestion.

Drink should chiefly be taken between meals; the blood needs plenty of fluids during pregnancy. Barley

water with some fresh lime juice in it, toast water or soda water are better than tea or coffee for assuaging the thirst, but drinks should not be taken *too* cold.

Alcohol is quite unnecessary, and benefits neither mother nor child, indeed it is said to favour miscarriage. Whether for allaying the sickness, or for the "cramps," and gnawing in the stomach, or for the faint feelings so common in pregnancy, it should never be taken unless ordered by the doctor.

Often disgust for all food, or for most foods, suddenly attacks the pregnant mother. Here the appetite must not be forced—but a change of scene may be tried. A little visit to a congenial friend with all the change of diet that it involves, is often successful in overcoming the distaste, and the mother returns home cheered and brightened, having forgotten all about this trouble.

Such a light and restricted diet will save the expectant mother from many of the ills—such as piles, dyspepsia, irritation of the vulva, restlessness—which make life a burden to many women at this time.

CLOTHING.

The woman who always dresses hygienically will have little need to alter her clothing during pregnancy. The chief requirements are that it should give complete freedom from pressure, and that all garments should hang from the shoulders, not round the waist.

The chemise and flannel petticoat are best discarded, and wool combination garments substituted. A "Union" petticoat bodice with petticoat attached, and without any bands, may be worn. Or better still, in the cold weather a woollen or knitted garment consisting of a

sleeveless jacket above, fitting tightly and ending in full knickerbockers below, is most comfortable.

The "Empire" style of gown, or a skirt suspended by straps to the shoulders with a loose jacket over, is the "rational" dress for an active mother at this time.

Free respiration and movements of the lungs must be provided for, since the mother has to "breathe for two," and clothing should be at least three inches larger than the waist to ensure that there is no pressure anywhere. Corsets should be discarded now, and it is best to give up all attempts at possessing a "waist" from the beginning of pregnancy. Stays are very apt to distribute pressure in wrong directions, and however loosely worn, they may press on the breasts, injure their glandular structure, and compress the nipples flat with the surface. In place of corsets there is an excellent invention called the "Emancipation" bodice, which can be obtained from the large English outfitters.

If further support for the enlarging breasts is needed, a simple *bandage* can be worn. It is made thus: take two strips of fine flannelette or flannel, about four or five inches wide, and long enough to go under one arm over the opposite shoulder and pin over in front.

Sew the two strips together exactly in the middle, where they cross over at the back. To adjust the bandage, bring the lower two pieces up under the breasts, avoiding all pressure upon the nipples, and pin the opposite ends together in front with a safety pin, sufficiently tightly to give a real sense of support to the breasts. If an abdominal belt or binder is worn, this breast bandage may be pinned to it to prevent it from slipping upwards.

The stockings should be of wool or silk, not cotton, and no garters should be worn. Shoes should have a low heel and wide soles, so that the poise of the body is not interfered with, and the womb thrown out of position. The legs are very apt to swell in the later months of pregnancy owing to interference with their circulation. Elastic stockings are sometimes worn if the veins are enlarged, but are difficult to keep clean in India. A well-adjusted flannel bandage is really the best support, applied from below up, beginning with a turn or two round the foot and ankle. It should be put on *before* rising from bed in the mornings.

Owing to weakness of the abdominal walls previously, the muscles may give way when the womb rises up out of the pelvis. Much discomfort may be prevented by wearing a *binder* for a support. A thoroughly satisfactory one can easily be made at home and will be useful at any time. This will consist of a piece of fine soft flannel about 10 or 14 inches wide and one to one and a half yards long, according to the size of the figure—allowing also for the enlargement of pregnancy. Two strips of the flannel must also be cut, 3 to 4 inches broad, from the length of the cloth and 16 or 18 inches long as may be necessary. These strips are to be sewn on to the abdominal belt behind, and will pass between the legs and fasten by a pin or button to the binder in front, to prevent it from slipping up.

The binder must have three darts made in it, one in the centre of the back, the others on each side, so that it will fit to the figure. At about 2 inches from the middle of the back, sew on to the binder the two strips, one on each side. The end sewn to the binder should be cut on the slant, and sewn on with the shortest side

turned towards the back. So arranged, the strips will not cut the limbs when passed between them and brought up in front. All the edges of this binder should be overcast not hemmed, and if strong support is needed, it may be made of thicker material, or of stronger flannel, doubled.

It is worn over the combination garment, and to adjust it properly, the woman lays it upon the bed and then lies down upon it. She should draw in the muscles of the abdomen, and pin the bandage together with safety pins as tightly as seems comfortable. Next the two strips sewn on behind are drawn up and attached by buttons to the binder, rather towards the sides than quite in front. Such a flannel bandage will be much more comfortable than the bought binder, and is quite as effective in supporting the abdomen.

EXERCISE AND MASSAGE.

An active muscular woman will only need to continue her regular household duties, daily walks and exercises, to ensure keeping up her muscular power until parturition takes place. She will need, however, to give up dancing, riding, cycling and all violent games after the first three months. In a temperate climate some mothers may indulge in games, cycling and vigorous forms of exercise till later in pregnancy, but in India these are apt to cause miscarriage. If riding must be resorted to when in camp, then the mother should ride astride, on a narrow native saddle—and very quietly without trotting.

It is even better to run some risk of inducing a miscarriage by over-exertion than to give up exercise and sink into an indolent sedentary existence during

pregnancy. Indeed, this is the surest way of inviting a miserable pregnancy and a tedious and painful labour.

In the first-half of pregnancy, climbing hills and going upstairs is not harmful, and strengthens important muscles of the abdomen and back. But having got up to the top of a hill it is usually needful to descend, and it is the descent which is apt to jar the uterus as the ascent does not do. In this way displacements and miscarriage have been caused.

The arms should not be stretched up above the head or any heavy weights lifted. In the last few weeks "breathing exercises" and gentle walks only should be attempted in India, and even walking may have to be given up if owing to swollen legs and feet much fatigue and weakness result from movement. In this case, carriage drives, massage, "breathing exercises" and a life lived in the open air must replace active movements.

A few women are able to ride a bicycle till near the end of pregnancy with benefit, but in the plains of India this will probably be found too exhausting. Women who have been accustomed to an out-door life may take very active exercise with impunity.

The Indian mother who is unaccustomed to any active exercise should begin to take it during pregnancy with the greatest caution. Some of the Breathing and other exercises mentioned in Part II of this book may be begun, and gradually increased from month to month, provided the woman stops short of real fatigue. None of them can do any harm, and they will purify the blood and strengthen weak muscles even if performed in a shut up house or verandah.

BATHING.

The ordinary daily warm bath followed by a douche of cold water thrown over the body, and a vigorous dry rubbing, should never be omitted. The best time for it in a healthy woman is 9 A.M., and an hour's rest on the bed should be taken after it. For weakly mothers, this bath is best taken in the evening; after it a light meal is eaten, and bed is sought.

Cold baths must never be taken by an expectant mother. All through pregnancy, especially where there is much bearing down, backache, and discomfort, due possibly to previous pelvic trouble, a daily Sitz-bath, or "hip bath" should be taken each night before retiring. The water should be warm and must come up to the waist. The mother may sit in it for 15 to 20 minutes, her body protected by a blanket or shawl from chills. Such a Sitz-bath relieves the "bearing down" feelings in the pelvis, besides being an excellent remedy for the sleeplessness, "fidgets," and other nervous troubles which disturb the mother too often.

An oil bath can be taken as a routine thing after the ordinary bath in the morning. Best olive oil is to be well rubbed into the whole skin of the body by an attendant. It is a good preliminary to massage, and not only helps to keep the skin in a healthy condition, but improves the general nutrition of the body when little vigorous exercise can be taken.

THE BOWELS.

These are apt to be very sluggish all through pregnancy, particularly if bad habits have been previously contracted. In the later months, want

of active exercise and the pressure of the large uterus on the intestines encourage this trouble. An effort should be made from the very first to form good habits; a whole day must on no account be passed without the bowels being unloaded.

A visit should be paid at exactly the same time each day even when no call is felt; a small glycerine enema can be taken for a few days each morning to encourage the relief till the habit is formed. Rubbing the abdomen round and round, beginning at the right side and moving the hand across the abdomen towards the left side and down, will help the daily evacuation. The diet should be revised; plenty of fruit, figs, raisins, oranges can be eaten in the early mornings, followed by a glass of hot or cold water before rising. If the dress is loose, if plenty of exercise is taken, and plenty of water drunk between meals, there should be little trouble in regulating this function of the body.

Nervous exhaustion, excitement, and late hours at night are sure to increase this trouble, and a mother should not be mentally overtaxed at this time. It is the people who "sit still and worry" that suffer most from constipation. How many of the ills and pains of this life are caused by this tendency to worry, a useless, foolish, selfish habit whose consequences none can foresee!

If constipation is neglected, it may end in a great accumulation of fæces (or waste products) in the bowel which poisons the blood, if it does not cause miscarriage or a difficult labour. Drugs are to be avoided as far as possible; such general means as mentioned above are much preferable to the use of purgatives.

THE BREASTS.

Every true woman will desire to nurse her child, and much suffering may be saved to both mother and babe by the proper care of the breasts during pregnancy.

In the first place, they should be *protected from all pressure* such as that of the ordinary corset, and the nipples also need protection from friction by the flannel garments. It is well to wear a thin pad over the nipple consisting of three to four thicknesses of very fine soft rag, which will also absorb any slight secretion of fluid. The nipples should be carefully bathed morning and night in the later months of pregnancy, in order that this secretion may not dry on and cake into scales upon the surface of the nipple, and make it tender.

Considering the great changes in and rapid development of the breasts that take place during pregnancy, it is hardly wonderful if some discomfort should occur. The breasts may swell up and become knotty and tender, even in the early months of pregnancy. This condition may subside in a week or two, or may continue till the end. All that is needed is to foment them with hot water, and have them gently rubbed twice a day with sweet oil.

When there is a general aching, and pain and heat in the breasts, it is best to apply a *cold compress*, made by soaking three to four folds of soft linen in cold water and covering with oiled silk or protective on the outside to prevent it from drying. This can be bandaged on all day, and kept continually wet.

The nipple is often flat and depressed owing to pressure of tight clothing. By a little perseverance in drawing it out daily, it may become prominent and

firm. In the last month or two a little lanoline may be rubbed in around the nipple, and then the nipple is made to protrude by pressing back the breast near it. With the fingers of the other hand the nipple is gently grasped and drawn out. This manipulation may be repeated twice each day for the last two or three months.

In order that when the child begins to suck the nipples may not become sore, it is sometimes necessary to "harden" them beforehand. This should always be done before a first confinement. The best application is glycerine containing tannic acid, alum, or borax, or a lotion of half glycerine and half Eau de Cologne. Spirit alone should not be used, as it causes dryness and brittleness of the skin. The proportions of tannic acid, alum and borax to be used are 1 drachm to 4 ounces of the glycerine. The nipples may be dabbed over for five minutes night and morning.

SLEEP AND REST.

The expectant mother needs a good deal more rest and sleep than normally, both on her own and the child's account. "The embryo needs conditions of quiet and serenity in which to develop harmoniously."

The room should be well ventilated, bright and pretty, and the mother's wishes should be consulted as to sleeping alone. Some prefer a room to themselves in order that they may do their fidgetting alone, and not be obliged to control it for another's sake. If external noises are a source of disturbance (and in India they are many) the mother should refuse to be worried and excited by them, since they are not under her control. The causes of such annoyance are often more in ourselves than in our surroundings.

As has been said, "If the cats and dogs keep you awake, you had better throw boots at yourself rather than at them." Even if unable to sleep, the mother can stay quiet and *rest;* a few sips of milk and water will often bring back the vanished friend.

When sleep tarries, night after night, the *cause* should be sought for.

Want of Oxygen, which accounts also for the headaches, nausea and faintness, can be met by admitting plenty of fresh air to the bedroom, or even by sleeping in the verandah.

Too heavy bed-clothing may be responsible; one or two blankets are ample when sleeping in the house. Sometimes on lying down in bed a feeling of suffocation and faintness is very troublesome, and will prevent sleep. This is owing to pressure upwards of the large womb upon the heart and lungs in the recumbent position. In this case plenty of pillows, or a well-adjusted bed-rest will overcome the difficulty.

Sometimes, too, slight recurring *pains* in the uterus interfere with sound sleep at nights. These often arise from constipation, but if this is absent, they may be ignored unless they become violent.

Cramps and pains in the legs on first getting to bed act in the same way. A couple of hot water bottles in the bed, and gentle rubbing and massage by the *ayah* give relief. Hot hip baths at night with a cold douche after, and a rubbing with olive oil, will do much to promote sleep in a restless woman with an active brain; all late hours and mental excitement must be carefully avoided by those who suffer from insomnia.

Every mother should take a short rest several times a day, lying down flat for half an hour with the foot of

the bed raised. One or two naps will do no harm, but will, on the contrary, soothe and refresh the system, so apt to get nervously overstrained in this condition.

When a mother suffers much from vomiting as well as sleeplessness, it is a good plan to sleep on late in the mornings instead of trying to get up after breakfast. In this way the omission of that meal is not felt, and by midday the worst of the nausea may be past.

MENTAL HYGIENE.

The mind and spirit of the mother need recreation during pregnancy as much as the body requires nourishment, if she is to bear beautiful and happy children. Now if ever, pleasure and some diversion is needed for the mind too often filled with secret fears and anxieties at the ordeal which lies before her. Plenty of work and household occupations are the best tonic for the mind as well as body at this time, but her friends should see to it that the mother takes a part in social pleasures which do not overfatigue her, nor involve late hours.

The ancient Greeks allowed *no* troublesome or unsightly thing to intrude upon a pregnant woman, who was guarded most sacredly, and provided bountifully with beautiful pictures, and pleasant companionship and occupations. When public opinion grows purer, we shall sweep away all unnatural conditions and customs, and surround the expectant mother with a universal atmosphere of sympathy and reverence, so that in all social gatherings she will feel herself welcome, and never an object of criticism.

CHAPTER IV.

Ailments of Pregnancy—Excessive Vomiting—Acidity and Flatulence—Palpitation of the Heart—Fainting Fits—Constipation—Diarrhœa—Dysentery—Headaches—Neuralgia—Sleeplessness—Salivation—Hysteria—Pruritis—Varicose Veins—Inflammation in the Breasts—Bladder Troubles—Chronic Uterine Disease.

AILMENTS OF PREGNANCY.

When expecting a first child it is wisest for the young mother to engage a doctor from the beginning, who will thoroughly examine and take over the direction of the pregnancy. He can best show the mother where to draw the line between over-anxiety in trifling matters and want of care in important ones.

In India, particularly, no one can afford to allow themselves to get 'below par' in any way, lest worse befall. Not unfrequently a young wife without any experience of the country, has suffered for weeks from fever without complaint, imagining that the misery and depression from which she was suffereng were only a necessary experience of her pregnancy.

A young mother should be satisfied with nothing less than a perfectly happy and healthful pregnancy, free from all disagreeable symptoms.

In small Indian stations, however, it is often impossible to obtain medical advice as the need arises. For women who are far from medical aid this chapter on some *ailments of pregnancy* is necessary, and only the simplest treatment for them has been indicated, such as any woman possessing commonsense may carry out for herself.

EXCESSIVE VOMITING.

Possibly this is the method by which nature secures the moderation in diet so needful in pregnancy. The nausea and sickness which start so early in pregnancy, have long been supposed to be due to irritation of the stomach, in sympathy with the new activity and changes in the uterus. The digestive organs certainly are in close connection with the reproductive organs, disease of which often results, as we noted in Part I, in severe indigestion.

On the other hand, there is no doubt that errors in diet, too much meat, a torpid liver and bowels, and faulty hygiene generally, may be responsible for much of the digestive disturbance of pregnancy.

Sometimes the skin does not act, and at the same time chronic dyspepsia and neglected constipation cause the blood to be poisoned by waste materials, which are reabsorbed instead of being thrown out. The vomiting is a symptom of blood-poisoning.

Again, uterine disorders and displacements not unfrequently cause a severe and persistent vomiting. The irritation is communicated from the nerves of the uterus to the stomach. Every time food is taken it returns, and the vomiting may continue when the stomach is quite empty, accompanied by cramps and pain at the 'pit' of the stomach. In these cases medical advice must be sought and the cause removed, for till that is done no drugs are of any use.

Habits of overfeeding, and self-indulgence and want of exercise may have the same effect.

It is plain, therefore, how all-important is a previous preparation for maternity, and the carrying out of a

wise régime of diet, exercise and other details in warding off this trouble.

Sickness when connected with an irritable stomach, will be accompanied by a furred tongue and sick headache, and bile may be vomited. An effectual purgative must be taken without delay. A safe one is 20 drops of Cascara Sagrada followed by a tumbler of very hot water. Or a pleasanter draught is made by adding lime juice and water to an ounce of "Fluid Magnesia." If the bowels do not act freely, these drugs may be followed up by a large enema of hot water from a douche can held low down.

If there is no constipation, a sedative draught containing 15 grains of Carbonate of Magnesia in a wineglass of Soda water is useful. Or 5 grains of Acetyl Salicylic Acid may be taken just before all food.

Some bad cases of vomiting are relieved by drinking a large glassful of warm water, to induce the sickness directly nausea is felt in the mornings. By this method it is got over for the whole day, and the stomach soon settles down to its work again.

In rare cases the mother may have been little troubled by nausea in the early months, and yet suffer severely in the later months. This form is due to the upward pressure of the enlarged uterus directly upon the stomach, and the persistent vomiting set up may cause labour to come on prematurely.

In such cases, small doses of chlorodyne, 5 to 10 drops two or three times a day, allay the irritation, or Morphia may be injected by the doctor to enable the food to be retained.

A cold compress bandaged on to the abdomen is almost always of use in severe vomiting. Three or

four folds of a wet cloth 8 to 10 inches wide are covered with a piece of waterproofed cloth; it should be dipped afresh into water every two hours or so. "Bismuth and Soda lozenges" sold by Burroughs and Wellcome are of some use, but in any case of persistent vomiting coming on late in pregnancy, a doctor must be consulted as soon as possible.

Diet must in all cases be light and nutritious, taken in small meals, not too often. Some women find great benefit from a cup of some pre-digested food (*e.g.*, "Malted Milk" or Benger's) taken in bed. By lying on quietly for an hour or two thereafter, the vomiting is staved off.

Others do better when taking only dry food, toast, biscuits, rice, chicken and grains. It is impossible to lay down one rule for all, but the general principles of not overloading the stomach (particularly in the early part of the day) and of lying on late in the mornings without much food, may be again referred to.

It has been found that going without any food at all till midday will control the severe sickness; it certainly seems to do no harm either to the mother or child. The great test in all cases of severe "morning sickness" is whether the general nutrition of the body remains good and the pulse of the mother strong. If so, there is no need for alarm even with troublesome nausea. But if the mother is getting pale and weaker, medical advice is necessary.

Some mothers have gone safely through a comfortable pregnancy and easy labour though only able to digest a little white of egg daily.

Nutrient enemas are often needed to strengthen the system until the stomach can retain light food.

ACIDITY AND FLATULENCE.

Acid risings in the throat, and wind in the stomach and bowels, are common troubles of pregnancy, but may be largely avoided by great care in diet and the regulation of the bowels.

Sweet and starchy foods should not be eaten in excess, and no fluid should be drunk with meals, and not till two hours after a meal. Simple food in small quantities may be taken for a few days while the bowels are being unloaded by enemas and simple laxatives.

To relieve the distension, a mixture of 15 grains of Magnesia, or of 10 grains of Bicarbonate of Soda, with one teaspoonful of "Sal Volatile" in half a wineglassful of water may be used.

A light supper at night instead of a heavy meal must be taken, and plenty of exercise and fresh air enjoyed during the day.

A tumbler of hot water sipped slowly between meals will often give relief. Tea should be avoided.

PALPITATION OF THE HEART.

This occurs commonly after eating a meal, or on first lying down in bed, when it is probably due to the extra pressure upwards of the womb and full stomach upon the heart. Mental excitement and indigestion often excite palpitation, and also too tight clothing impeding the lungs and heart. An attack may come on suddenly in the night, accompanied by breathlessness and suffocating feelings. The pregnant woman must remember that such symptoms do not in the least mean that the heart is diseased; they are largely nervous disorders, which time and a healthy out-door life will relieve.

Plenty of fresh air should be admitted to the sleeping chamber, which must not be crowded with other people or children, sleeping in it. Brandy must *never* be given during an attack; tea and coffee should be sparingly indulged in, and very weak.

Half a teaspoonful of "Sal Volatile" or of Spirit of Camphor in a little water may be kept ready for an attack, or a "Soda-mint tabloid" (Burroughs and Wellcome) may be sucked if indigestion is the cause.

Debility and anæmia may occasion severe palpitation. When these are the causes, an iron tonic will be necessary. The best of these are the "Ammoniated Citrate of Iron" of which 5 grains may be taken with meals three times a day, or the "Dialysed Iron," dose 5 drops in a little water 3 times a day. In these cases fatigue and over-exertion must be avoided, and the mind kept free from worries and anxiety.

FAINTING FITS

Are connected with the disturbances of circulation owing to pregnancy; they should occasion no alarm. Hot bad air, over-fatigue or shock, will cause them, and too tight clothing. All that is required is to place the patient flat at once, apply heat to the heart region (the lower ribs just to the left of the breast bone), and friction to the limbs. When they come on frequently, a doctor should be consulted. Meanwhile a *bitter tonic*, such as a wineglassful of infusion of Gentian or Calumba, may be taken twice a day. Plenty of fresh air and light food only are beneficial, and the clothing must be worn *very* loose.

CONSTIPATION AND ACCUMULATION OF FÆCES.

Although the tendency to constipation is very common in pregnancy, it should never be allowed to become a "disorder."

But if through ignorance or neglect two or three days are allowed to pass by without a thorough evacuation, accumulation of the refuse material ("fæces") will take place and the bowels will get more and more sluggish.

The result will be an overloaded intestine, and an easy labour may be converted into a long, tedious or difficult one. Besides the direct pressure of the womb upon the bowel, sedentary habits, mental fatigue and the habitual use of purgatives all increase the tendency to intractable constipation.

These things can all be avoided in pregnancy. If several days are allowed to pass by, distension and much discomfort may be experienced, and headache, loss of appetite and foul tongue soon result. Even diarrhœa may follow such neglect, showing an irritated condition of the bowels, though it is really an effort of nature to remove the foul material.

In such neglected constipation it is most necessary to first remove the hard accumulation by a prolonged enema of soapsuds, or of warm water containing 2 ounces of olive oil.

If this does not produce a really satisfactory evacuation of the hard lumps, they will have to be removed by a nurse or doctor. But such a condition will never occur if diet, exercise, and other matters are carefully attended to, as described in the last chapter. Strong medicines to open the bowels are best avoided altogether.

The mineral waters, liquid Magnesia, or small doses of Cascara Sagrada may be taken exceptionally. But every effort should be made to secure a daily movement without these.

In really obstinate constipation of pregnancy, the safest plan is to take a daily 'enema' of plain hot water throughout the whole time, with a dose of some mild aperient once a week or so if needed. Such a daily lavement of the bowel has a wonderful effect in controlling the "morning sickness" when it is troublesome.

In addition to these means, the daily Sitz-bath of warm water may be followed by a sluice of *cold* water over the abdomen. Also, the special exercises described in Part II, for strengthening the muscles of the abdomen and pelvis may be regularly practised.

The special diet for constipated women is described in Part I of this book; a dose of olive oil, or the fig pudding with olive oil there described, may be taken every night with excellent effect.

DIARRHŒA.

In place of constipation the pregnant woman is sometimes subject to looseness of the bowels, owing to the condition of the womb irritating the bowels. This results in frequent small loose motions of a natural colour, passed without pain or griping.

A few days' rest in bed and careful dieting will usually tide over the difficulty, but it may be necessary also to take less exercise, and one dose of *Chlorodyne*, 20 drops in a little water, will often control it for two or three days.

Another form of diarrhœa has usually been proceeded by constipation; the tongue is foul and the digestion upset.

In such a case, a moderate dose of Castor Oil Emulsion, one teaspoonful to a dessertspoonful, should be taken, or a couple of Rhubarb pills.

Then a good large enema of plain boiled warm water should be administered and repeated once each day till the diarrhœa has ceased. The first day only fluid food must be taken, chiefly soup, whey or rice water; milk is best avoided until the diarrhœa is controlled and should at first be peptonised.

Rest in bed is also very necessary in all diarrhœa attacks during pregnancy.

DYSENTERY.

This disease is very common among pregnant women in India. The proper line of treatment to follow in this disease is laid down in Part I, but medical aid should be obtained without loss of time.

The starch enema is specially useful, as it controls the straining and "bearing down" so dangerous in this condition; 20 drops of Tincture of Opium should be added to it.

Indian women, and Europeans who do not live in the best possible surroundings, are greatly subject to a chronic diarrhœa during pregnancy, which is varied from time to time by attacks of acute dysentery. Rest in bed and the daily irrigation of the bowels by enemas of Boracic Lotion, are essentials of the treatment. Internally, 10 grains of Salol should be taken two or three times a day, or equal parts of Bismuth and Salol. A doctor's advice should be got as soon as possible.

HEADACHES.

The "sick-headache" of pregnancy is nearly always attended by constipation and stomach disorders, or else it is due to excitement, worry or over-exertion. Everyone of these causes of the trouble may be avoided. Certain articles of diet which do not suit the individual may occasion such a headache. Hence no one ought to suffer long from such attacks, which subside when the cause is removed.

A rest from all strain and excitement, and a few days fast from solid food, will usually relieve them. A daily enema and plenty of hot water between meals will cleanse the digestive tract. Hot water bottles to the stomach and feet, and a daily Sitz-bath, are also useful.

Severe *continuous* headaches with blurred vision and dizziness, require to be treated by a physician, who will examine the urine thoroughly. Meanwhile, prolonged hot baths twice a day, hot water fomentations to the spine, and a simple milk diet only are advisable, until medical aid is obtained.

NEURALGIA AND TOOTHACHE.

These cause much misery, and if any decayed tooth is found, it should be remedied by going to a good dentist at once. There is little danger in having even a tooth extracted during pregnancy; the sleeplessness and pain from a bad tooth is far more injurious to the mother than any little operation of the kind.

Malaria will sometimes show itself by neuralgia at this time, especially in weakly women. The best tonic is 2 to 3 grains of the Citrate of Iron and Quinine, dissolved in a wineglassful of port wine twice a day after food.

If Quinine does not agree, three drops of Fowler's Solution may be dissolved in port wine. A small dose of Quinine does no harm in pregnancy, but more than 3 or 4 grains a day should not be taken.

In full-blooded people neuralgia may be controlled by limiting the food for a few days to light milk puddings and cereal foods. A mild purgative such as syrup of figs or compound liquorice powder is useful.

Neuralgia has been described as "the prayer of the nerves for healthy blood." So we find the best way of getting rid of it is to improve the blood, whether by good nourishing food and tonics, or by clearing away poisons from it, as can be done by purgatives; fresh air is one of the very best blood-purifiers, and those who live out of doors rarely suffer from this trouble.

SLEEPLESSNESS.

Digestive troubles are often responsible for the bad nights of pregnancy. Late dinners, and tea and coffee should be avoided where there is much sleeplessness.

"Night-caps" containing Alcohol do more harm than good, but a cup of hot milk or gruel sipped when in bed is very useful. A hot mustard foot bath just before retiring, and hot bottles to the feet, will relieve any cramps.

In the hot weather, a tepid sponge bath may be taken the last thing at night; for burning of the soles of the feet, wrapping them in cold wet clothes is effectual.

A pillow under the small of the back to raise the abdomen and shoulders is useful. Drugs must never be resorted to for this trouble without a doctor's orders, and then only as a last resort.

SALIVATION.

This is a very annoying discharge of a large quantity of saliva from the mouth at frequent intervals. It may be clear or frothy, or have an unpleasant taste. It is one of the small evils of pregnancy which have to be endured patiently for a few months.

The mouth may be frequently washed out with lime water; or solution of Tannic Acid, 5 grains in an ounce of water, can be held for some minutes in the mouth at intervals through the day.

If there is much nausea and flatulence at the same time, 3 grains of Carbonate of Ammonia may be dissolved in a little Soda water, and drunk three or four times a day. Or the same dose of Bismuth Carbonate may be used.

HYSTERIA.

It is most unusual for an active woman who is kept constantly occupied by work and social pleasures—with no overstrain in these—to suffer from hysterical symptoms, but they may appear in pregnancy even in the most self-controlled temperaments.

Often the causes are indigestion, sleeplessness or "unpleasant surroundings operating on a nervous system very sensitive and now a little out of tune."

Women who lead sedentary lives, and are kept constantly shut up in the house with little change and occupation, are very apt to get depressed and nervous, and may get severe convulsive attacks. Cheerful companionship and entertainment throughout the long strain of pregnancy will do much to prevent such symptoms.

Nervous symptoms sometimes result from very violent movements of the child which, in the later months of pregnancy, may cause much pain and discomfort.

Hot fomentations with flannels may be used at nights for half an hour before settling down to sleep. A firm abdominal belt should also be worn; this supports the womb and relieves inconvenience from size when the muscles are weak.

PRURITIS.

Intolerable itching (*Pruritis*) of the external parts is another nervous symptom which gives great trouble. The treatment for it has been already described in Part II. In pregnancy, the application of cold in the form of crushed ice, or hot fomentations with poppy-head decoction, may give additional relief. Four ounces of poppy-heads are boiled with 4 ounces of hot water for 15 minutes, and then strained off through muslin, and used to foment the parts.

VARICOSE VEINS AND SWELLING OF THE LEGS.

The large womb pressing upon the veins in the pelvis causes a good deal of interference with the circulation, and the feet and legs swell. Often too the veins become so overdistended that they show as large dilated "varicose" vessels on the inner side of the legs and thighs. Clots may form at intervals along the vein, which become tender and painful, and may even burst.

Such serious cases need treatment—and the bleeding from the ruptured vein must be stopped by at once tying a tight bandage over a pad at the spot that has burst, and just below it. The inflamed reddened vein

may be treated by entire rest of the leg, which may be raised on a pillow.

Lead lotion should be kept constantly applied to the part; "lint" can be soaked in a mixture of equal parts of solution of Subacetate of Lead and cold water and laid on the leg. Such swollen legs must never be rubbed, as very serious results may follow.

The bowels need to be kept very freely open and an abdominal belt to support the womb is useful. Each leg may be carefully bandaged each morning before getting up, from the foot to the groin. A soft flannel or webbing bandage, about 2½ inches wide and 7 to 10 yards long, is the most convenient and comfortable. If the external parts are also swollen, as happens sometimes, a good deal of rest should be taken with the pelvis and buttocks raised.

In a case where with much swelling of the legs there is breathlessness, dizziness and headache, a doctor's advice should be got immediately.

INFLAMMATION IN THE BREASTS.

It is very rarely that the slight swelling and development of the breasts already described go on to serious inflammation. In India, however such cases do occur especially in connection with Malaria or Dysentery, which leave a mother anæmic and weak. Hard "knots" form which become very tender and acutely painful, and the temperature rises.

The first thing is to stay quietly in bed for a few days; with the breast supported by a bandage. Hot poppy fomentations can be used frequently during the day—and at night the breast can be rubbed very gently

all over with Belladonna and Glycerine, then wool and a bandage applied fairly tightly.

Very light diet should be taken, but no milk drunk; and a mild purgative, such as liquid magnesia, or "fruit salts," confection of senna, or mineral waters is advisable.

BLADDER TROUBLES.

Both in the early and later months of pregnancy there may be a good deal of irritation or sluggishness of the bladder.

In India, chills caught under the punkah or over-exertion, will increase this irritation, till life becomes unbearable, and the night is sleepless owing to the constant desire to micturate.

Laxative medicines, and plenty of barley water and weak tea should be drunk, or lime water and milk. Several times a day a rest for half to one hour should be taken lying flat on the bed; a tight abdominal binder is useful if there is any constant dribbling in the later months.

Care must be taken to notice that the full amount of urine is passed in each 24 hours, as the dribbling may be sometimes only a sign of an overdistended bladder which never empties itself properly.

A torpid bladder often arises from neglect. The mother should pass water at least every six hours of the day. If it does not come, and is "retained," she should have hot fomentations to the vulva and abdomen, or pour warm water from a jug over the parts. A hot Sitz-bath is also useful.

If these means fail, a doctor must be called in immediately.

CHRONIC UTERINE DISEASE AND LEUCORRHŒA ("WHITES").

A mother may be suffering from chronic congestion or a displacement when pregnancy begins. This is not always desirable from the point of view of the child, and such conditions are apt to complicate pregnancy.

They may cause some "bearing down" pains, through to the back and down the thighs. Often there are cramps and pains in the abdomen, and some white discharge. The treatment for eucorrhœa has already been discussed. The following are the important points for a pregnant woman to observe if these symptoms appear:

1. She should lie down most of the day with the foot of the bed raised.
2. Take a warm salt Sitz-bath twice daily for ten to fifteen minutes.
3. Use a daily enema, and an *occasional* gentle laxative to keep the bowels free.
4. If much disagreeable-smelling discharge comes away, a daily douche to the vagina of warm water containing Alum or Lead lotion may be taken. The can should be hung *low*.
5. If she is weak and anæmic, a 3-grain dose of the Ammoniated Citrate of Iron may be taken in water three times a day.

CHAPTER V.

Hæmorrhage—Miscarriage.

HÆMORRHAGE.

At any time during pregnancy there may be a discharge of blood from the womb. Some women menstruate regularly during the first two or three months without any evil consequences, but usually any such bleeding indicates that there is danger of miscarriage. As has before been described, such a monthly flow may lead to mistakes in calculating the duration of pregnancy, as if it occurs just before the flow commences, it may fail to stop it. When this monthly flow occurs in pregnancy, there is in any case danger that the ovum will be expelled at the same time. Consequently, a woman who suspects that she is pregnant will do well to rest quietly in bed for the few days that it lasts, taking only light diet and cold unstimulating food.

Irregular hæmorrhages are also not uncommon, particularly in India and hot climates, where the heat, want of exercise, and debility produce a weak condition of the bloodvessels.

Accidents, over-fatigue and excitement, or anything else disturbing the circulation may cause bleeding in the later months. The mother should go to bed at once and stay there for some days, till all bleeding has ceased for 48 hours at least. A doctor should be summoned, as medicines may be needed. Meanwhile, light cold food only may be taken, and the bowels kept open by a small glycerine enema. Purgatives should be avoided, and the room must be airy and cool.

Every pregnant woman should exercise the greatest care and keep very quiet at the times which correspond to what would have been her monthly period.

There is a tendency for the womb to expel the embryo at the end of every 4 weeks or 28 days.

During the first few weeks the connection between the ovum and the womb is not so close a one as it becomes after the placenta or after birth has formed, so that "miscarriage," or the expulsion of the unripe ovum, is commoner in those months and more easily brought about than later on.

MISCARRIAGE.

When the embryo is expelled at any time within the first three months of pregnancy, an '*abortion*' is said to have occurred ; before the seventh month it is called a *miscarriage.*

Such an accident is the most unfortunate thing that can happen to the mother, resulting as it does not only in the death of the child, but too often injuring her constitution permanently. It is well, however, for every woman to realize that miscarriage at any time can be prevented, as a study of its causes will show.

When the ovum is discharged in the *first month* there may be little to distinguish the abortion from a profuse menstruation.

After this, however, there is always some danger involved ; severe bleeding commonly takes place, especially from the third month onwards. Again, inflammation of the womb and other organs often results, while the danger of blood-poisoning is very great. It has been wisely said that " Nature can take care of a ripe uterus, but not of one that is unripe." And so it is

that the simplest case of miscarriage may be fraught with more anxiety and danger than the most difficult labour and delivery at full term.

But not only does miscarriage cause pelvic disease; it often results from it. Thus, women who have suffered from any uterine disorder, or slight displacement, are prone to miscarry, and should put themselves under careful medical supervision from the time they become aware of the pregnancy. If carefully managed, the pregnancy and confinement may be safely conducted, and even be used as a means of curing permanently the original disease.

When a miscarriage has once taken place, it is apt to happen again in the next pregnancy just at the same time. In this way a *habit* of aborting is formed, which may ruin the health and happiness of the young wife.

Miscarriage is always most liable to occur at the time that the menstrual period would commence if the mother were not pregnant—so that special care must then be taken to avoid over-exertion.

Indian *climatic diseases*, malaria and dysentery, are fruitful causes of miscarriage by weakening the blood-vessels and the connection between the embryo, or the "afterbirth," and the womb.

The same may be said of the infective germ diseases, which strongly predispose a woman to abort. They need prolonged treatment before pregnancy is entered upon, or diseased unhealthy children will result.

Where the predisposition exists, very slight causes may produce miscarriage. In healthy women, unless there is a tendency to it, there is great difficulty in inducing abortion, so unnatural is the forcible separation of the unripe embryo from its nest in the womb.

I have known the following means tried one after the other by a young wife who desired to rid herself of the unwelcome guest, but without success. Strong irritating purgatives were first taken, followed by the injection of powerful caustics, the application of handkerchiefs soaked in 'blistering fluid,' and finally the passing of a long thick pencil into the mouth of the womb! The result was merely extensive ulceration and much suffering, but the pregnancy was not interrupted.

Besides such direct irritation, other common causes of abortion are violent exertion, or excitement of mind and body, accidents, and too frequent marital intercourse.

The use of strong purgatives during pregnancy irritates the bowel and may affect the womb in the same way, while sudden violent pain in any part of the body may excite contractions in the womb.

Sudden attacks of ague and fever or other complaints may affect the uterus, and are a source of danger.

Most of these causes can be avoided, or at least controlled by proper medical treatment, which should be obtained without delay. It is never safe to neglect even small ailments in pregnancy, when living in the unnatural conditions that life in India involves.

Symptoms.—The earliest signs that a miscarriage threatens are often very indefinite, and may easily be overlooked. There is a feeling of lassitude or depression, with aching in the thighs and back, often mistaken for the onset of an attack of ague.

The pains come and go irregularly, and there may be headache, and some sense of weight and tension in the pelvis and lower part of the abdomen. Chilliness

and shivering increase the likeness to a malarial attack, and, indeed, there is often some feverishness as well.

When neglected, these early symptoms are followed by those of the *second stage*, which is marked by a discharge of blood from the womb.

The aching in the back and pelvis increase till they become regular expulsive pains. Clots and large quantities of blood pass away; indeed the bleeding may endanger the mother's life at this stage.

In the *third stage* the child, which has been gradually separating from the womb, is ready to be expelled, and usually comes away in a clot, or with a rush of blood.

Unfortunately, even if the embryo is discharged without assistance, the "bag of membranes" in which it lies and the "afterbirth" are too often retained in the uterus, which lacks the power to contract and expel them.

It is for this reason that it is of great importance to have skilled medical assistance at hand in *every* case of miscarriage, for it is hardly possible for an untrained person to decide whether anything has been left behind or not. If retained, the pieces of membrane or afterbirth soon decompose and set up dangerous blood-poisoning.

Treatment.—The whole process of miscarriage may be over in a few hours, or more commonly it takes several days.

The moment the preliminary signs are noted, the mother should lie down undressed in bed in a cool room.

The foot of the bed may be raised on two bricks, and the patient should not move off the back.

Cold water (not iced) compresses may be also applied to the lower part of the abdomen, changed every hour.

A little liquid cold food may be taken every few hours, the less the better. It is, however, permissible to drink plenty of cold lemon or lime juice.

Even if there are slight pains and a "show" of blood, the miscarriage may yet be averted. In that case, 20 drops of Chlorodyne may be taken in a little water, and the above treatment continued until the doctor arrives.

Many mothers in isolated stations cannot obtain medical assistance quickly, and have to be treated without it. For them the following hints may be of use.

In the first place, there must be *no sitting up* in bed for any purpose whatever. The bed pan must be used entirely, and the bowels may be kept open by a small glycerine enema each day. No purgative medicines must be taken on any account.

The diet should consist of milk and custard only, and should be given by a feeding cup.

If the third stage is reached, and "clots" or solid pieces are expelled, these must all be carefully kept for the doctor to see, in order to help him to decide whether the whole or only part of the ovum has been discharged.

One sign that all has not come away is that the bleeding continues, though it may be less than before.

A few hours later, when the retained portion begins to decompose, a bad smell is noticed, and there is now great danger of blood-poisoning.

The discharge is soon greenish or yellow, if not bloody, and such a dangerous state of things can only be remedied by a doctor. The afterbirth after the third month is about the size of the palm of the hand or smaller; in the later months it is much larger and

thicker. As it may come away in pieces, it is difficult for an inexperienced person to determine how much is left behind.

The first necessity is *cleanliness;* prolonged vaginal douches may be given two or three times a day,—using Izal or Lysol lotion and plenty of hot water.

Tampon.—If during the miscarriage at any time the bleeding becomes very severe, and no doctor is present, it will be necessary to plug the passage so as to control the hæmorrhage by pressure. To do this, all that is needed are several long strips of clean muslin or "mull-mull" two or three inches wide, or soft fine handkerchiefs can be used. These strips are put to boil in a clean saucepan with water.

Meanwhile a very hot vaginal douche should be administered containing *Lysol,* as above described.

The vulva and external parts should be well washed, also the hands of the attendant, and then the strips of cloth are picked out of the saucepan with a fork, placed on a clean soup plate to cool and then wrung dry. They must be packed into the vagina one by one with the fingers,—care being taken to push them up as high as they will go, and to fill the upper part of the passage near the mouth of the womb first of all *very tightly.*

If the doctor has not arrived, this 'tampon' may be removed after six or eight hours, when each strip may be pulled out gently, and the parts again washed; a pad of clean absorbent wool may be applied over the vulva. Such a plug not only may be effectual in controlling the bleeding, but it also helps the mouth of the womb to dilate, and so hastens the termination of the miscarriage, a most desirable result when the hæmorrhage has been severe.

After there has been much bleeding it is hopeless to try and stop the miscarriage. The mother must remain quite quiet, lying on her back without moving and take light food. Many women feel that they cannot possibly use the bed pan, but this is largely a matter of self-control and determination. Urine can often be more easily passed just while the douche is being given ; or a jug of warm boracic lotion may be poured over the parts while the patient lies upon the bed pan.

After-care.—The uterus takes even longer to return to its normal condition than it does after a confinement. It is absolutely necessary to stay in bed for ten days after an abortion, and for fourteen days after a miscarriage. The mother will find it will save her much suffering to do this, for any want of care may be followed by severe bleeding, or inflammation of the pelvic organs. She should lie chiefly on the face or side.

A daily douche containing antiseptics is also needed, and the discharge should be carefully watched in case it becomes disagreeable in odour, or thick like matter.

During the first three or four days it may be red and pink, but after that is watery, and gradually getting clearer up till the ninth or tenth day. There should be no pain after a complete miscarriage.

If any *bleeding* occurs after a miscarriage is supposed to be over, a doctor should be called. It may be due to a small piece of some retained material which should be got away without delay. Meanwhile the hand should be pressed down upon the abdomen to grasp the womb, which is to be well rubbed and kneaded. Iced cloths can also be applied, and the patient must not be allowed to move.

It may even be necessary to plug the vagina in the way described above; but this can only be a temporary measure, and the rubbing must be continued all the time until the hæmorrhage ceases.

Ergot, a drug in very common use, but dangerous in unskilled hands, must never be given before the whole ovum has come away.

When bleeding occurs after the process is complete, or during convalescence, a teaspoonful can be at once administered in a little water where no doctor is available.

Owing to the loss of blood, which is usually considerable, and to the predisposing causes which involve anæmia and debility or other diseases, the recovery from miscarriage often takes some months.

Perfect *rest* for mind and body is at first necessary; all marital intercourse should be avoided for six months, or until the health is pronounced thoroughly re-established.

The same rule should be observed for future pregnancies, if a miscarriage has taken place; complete abstinence is the only safeguard and cannot too much be insisted upon, if an abortion is to be avoided.

All defects in diet and habits of life should be remedied before the next pregnancy is entered upon.

Gentle exercise out of doors may be begun at the end of a month and gradually increased till at the end of three months a normal amount is being taken, and riding and games then can be begun.

Climate has a very great influence in determining miscarriage.

A change to some *dry* hill station, or to Europe, may often save a miscarriage from happening in those who have a pre-disposition to it.

CHAPTER VI.

Parturition—Preparation for Labour.

PARTURITION.

It must be remembered that this is a natural physiological act which should be both painless and safe. In every possible way the means have been here perfectly adjusted to the end, and the welfare of both mother and child carefully provided for. It is true that some endurance and sturdy physique are required to meet the strain that reproduction entails upon the civilized woman. But for a mother who has established her life on right lines and has acquired healthful habits, the ordeal need have no terrors.

In spite of improved knowledge of hygiene in these days, many young wives have unfortunately been overstrained physically or nervously from childhood, and so have little reserve power left to meet the demands of marriage and the strain of child-bearing.

Again, there is danger lest the manly sports in which we now allow the young girl to indulge to excess, may result in so developing her bones as to make her configuration resemble more and more that of the male, which is not well adapted for this the main purpose of her being.

Since the recent development of the germ theory of diseases, immense changes have come to be made in the management of labour and the lying-in-room.

We now regard the chief dangers of parturition as arising from *dirt*, whether it be in the form of foul air and drains, crowded, unhealthy dwellings, soiled clothing, or lack of the strictest cleanliness in the attendants and mother herself. At this time also the system

is much more susceptible to infectious germs of all kinds; in India where germ diseases are so prevalent, they are ready to attack anyone whose resistant power is lowered, and it necessarily is so after the effort of child-bearing. Thus the fatigued mother, confined to bed, unable to enjoy strong sunlight and fresh air, falls an easy victim to such disorders.

PREPARATION FOR LABOUR.

In preparation for labour, therefore, it is very necessary to pay special attention to the ordinary hygiene of the household and person as described in Part I of this book.

The condition of the drainage should be looked to, and plenty of phenyle used daily in cleansing all water-courses near the house. The sweepers' doings should be watched, and all refuse heaps removed from the compound or its neighbourhood.

The whole house should be spotlessly clean, and for the lying-in-room the brightest and most airy room in the house should be chosen. The old matting must all be removed, and either linoleum or a clean drugget (or 'durrie') put down on the floor of the birth-chamber. This must not open directly out of a bath-room, and it should have plenty of windows for ventilation.

Something more than the mere getting the mother up is desired; she must get up as well and strong as before. Every arrangement made should be directed to this end and it must be remembered that the smooth running of the household machinery, and pleasant surroundings, are important aids to a quick and satisfactory recovery. The presence of a pleasant judicious

friend in the house is a great help,—but a discordant person will give the mother much mental disturbance and may retard her recovery.

The choice of a nurse should, as a rule, be made both by the mother and doctor, acting together;—or the doctor having chosen one, should try to arrange that the lady engaging her has a personal interview, as no one else can choose for the patient so satisfactorily as she herself.

She should be strong, and spotlessly clean, well trained in all methods of sterilizing and preparation for labour.

She must not come direct from nursing any communicable disease, such as dysentery, enteric or the infective fevers, or cases of abscesses, blood-poisoning, and foul wounds.

Careful enquiries should be made about this before she enters the lying-in-room, as it will be too late to change afterwards.

It has been already said that in a first pregnancy at least, the medical attendant should be engaged early, and take over the direction of the pregnancy. He will also wish to make a careful examination about a month before the confinement is expected, in order to detect and remedy anything that may be wrong. As far as possible, everything needed for the confinement and the lying-in should be ready in the house a month before the calculated date, as mistakes are made very often, and mothers may be 'taken unawares.'

List of articles needed for confinement.

2 bed pans.
1 douche-can, of glass or enamel.

2 yards new rubber tubing for the same.
1 glass nozzle.
1 enema syringe (Higginson's).
3 small rubber hot water bottles.
2 yards of double width Mackintosh sheeting.
2 lbs of absorbent antiseptic wool.
2 lbs. of "Gamgee tissue."
1 bath thermometer.
1 feeding cup.
1 pair scissors.
Vinolia soap.
1 bottle of best olive ('Salad') oil.
2 ounces of powdered boracic acid.
1 lb. liquid carbolic acid
1 skein of linen thread or embroidery silk.
1 tube of Vinolia cream or pure Vaseline.

For lying-in-bed, the best *garments* for the mother are a long loose chemise and a bed jacket. The former can be most easily slipped downwards and changed when soiled.

The only special clothing to be prepared for the mother is the "*Binders*," which are worn for a few days after delivery to support the abdomen.

Some doctors recommend one form of these, some another. The simplest consist of a strip of cotton or flannel material, 16—18 inches wide, and about 1½ yards long. This is brought round from the back and pinned together with safety pins in front, somewhat to the left side. There should be six or eight of these made ready, with a dozen large safety pins.

Just before labour is expected, the nurse should get everything quite prepared for the event,—or if the nurse is not in the house beforehand, the mother should do so.

The ligatures for tying the child's navel string must be made of the linen thread or silk, by cutting three strands about twelve inches long and braiding them together into a strong string. Two of these are prepared by first of all boiling them for five minutes in water, and then they should be kept in a wide-mouthed bottle containing a few ounces of Carbolic lotion (one in 40 parts of water) tightly corked up until needed.

In India babies have many a times died of tetanus or blood-poisoning through want of care in 'sterilizing' these ligatures for the cord.

The douche-can must be scalded out with boiling water, and the glass nozzle boiled and then kept soaking in Carbolic lotion. It will have to be boiled every day and kept soaking in Carbolic in a basin permanently, except when being used for the douches after the confinement.

All the *clothing* and bed linen should be so arranged that there will be no difficulty in knowing exactly where each article needed is to be found. In one drawer the mother may place her night-gowns, chemises and personal linen.

The ordinary diapers or sanitary towels will only be needed after the first four or five days, but should be in readiness.

In another drawer the sheets and towels (of which a plentiful supply are necessary) may be kept, and in a third drawer the rubber sheeting, the absorbent wool, medicines and "gamgee tissue." This last consists of wool folded between thinnest butter cloth,—and it is used in place of diapers for the first few days after delivery.

Another plan may be followed if expense is a consideration. Some 20 or 30 yards of fine "gauze" (" kutcha

mullmull") or butter cloth may be bought in the bazaar, and also a packet of sterilized absorbent wool.

The gauze should be washed out with soap and water, and then boiled for half-an-hour in a large saucepan of water. It is then taken out with clean hands—spread out to dry and ironed over quickly. Have ready a sheet already boiled itself, and dried; wrap up the gauze in it ready for use. When needed, a pad of wool is wrapped up in a piece of the gauze cut some eighteen inches long, and is used for absorbing the discharges in place of diapers. Some pieces of the wool or of gauze are to be used also as sponges for washing the parts after as well as before the child has arrived. Ordinary unsterilized sponges or rags must not touch the parts.

The two bed pans will be kept quite separate throughout. One, with a lid, may be used only for the evacuations, the other for the douching and cleansings of the parts. Lysol or Carbolic lotion should be always kept in the pans, the cleansing of which the nurse should always see to herself each time they are used.

The *bed* must also be got ready. The worst bed for the confinement is one with a spring mattress. Better is the frame of iron or wood with webbing ('nawár') tightly laced across it.

This bed is not easily depressed into a hole by the body, or by the bed pan, and yet has quite sufficient elasticity to be comfortable for prolonged lying. The "Lawson Tait" wire mattress and bed frame is also very comfortable and suitable.

The mattresses for these may be either of hair or coir, but not of wool, and the nurse should air them and all the bedding in the sun for a day or two before labour is expected.

There is a right way as well as a wrong way of making up the bed. When labour has begun, a blanket and sheet are spread over the mattrass in the usual way, and over all one of the large pieces of mackintosh the whole length of the bed.

Across the middle of this, another linen sheet folded lengthwise may be pinned, to act as a draw sheet just under the patient's buttocks.

Four safety pins, one at each corner, will keep it firmly attached to the mattrass beneath. Over all this the second mackintosh is laid, with a clean folded sheet or bath-towel (previously *boiled* in a saucepan and dried), which will absorb the discharges under the patient. This is removed with the upper mackintosh after the delivery is over,—leaving a clean dry bed below, all ready for the mother, who must not be moved unnecessarily.

The under mackintosh may be discarded after two or three days, and only used when the bed pan is passed for any purpose. In the hot weather it prevents evaporation and is very heating, so that the mother is more comfortable without it.

When signs of approaching labour show themselves, the nurse must prepare the mother for delivery by dressing her in a chemise and a flannel petticoat, with a dressing jacket or dressing gown over all. The chemise may later on be rolled up round the waist—and a folded sheet pinned round the figure is substituted for the flannel petticoat. Warm stockings are a necessity.

An enema of warm water is very good at this time, and should never be omitted even when there has been diarrhœa. It removes all irritating matters and softens and cleanses the rectum, and so is of assistance in the labour.

Next, a warm Sitz bath is of great use, after which the vulva should be specially scrubbed with soap and water and bathed with antiseptic lotion, Lysol, or the Perchloride of Mercury lotion, 1 in 2000 parts.

The vaginal douche need not be given in ordinary cases, or without good reason, as it washes away the mucus which is the natural lubricant of the parts. The only excuse for giving the *douche before delivery* is when there has been much white discharge during pregnancy; it also acts usefully in helping to dilate the mouth of the womb if the labour is very slow and tedious.

Whenever the douche is given, before or after labour, every precaution must be taken to ensure perfect sterilization of the hands, nozzle, and douche-can, or it will do more harm than good.

The nurse should also see that the bladder is being thoroughly emptied, and that sufficient water is being passed throughout the labour. This care is necessary because the bladder often gets over-distended, though all the while there may be dribbling of urine.

In the plains, or in any unhealthy district, a small dose of ***Quinine*** (four to six grains) may well be daily taken by the mother as labour approaches, in order to ward off the malaria which is apt to attack the lying-in woman, whether Indian or European, in the hot season. At the commencement of labour a larger dose, up to 10 grains, may be taken by those who are subject to malarial attacks. Again, if living in unhealthy surroundings, the mother should always take a warm Lysol douche before delivery.

CHAPTER VII.

Signs and Progress of Labour—Labour.

SIGNS AND PROGRESS OF LABOUR.

THERE are usually unmistakable *signs* that labour is approaching during the last week or two of pregnancy, and it is now that the mother may become restless and nervous, troubled by a thousand foolish fears and fancies. Too often the fearful tales of croaking friends recur to her mind, and she remembers the horrors endured by some unfortunate matron in a bad confinement thirty years ago.

Now that a young mother may come to her time of delivery thoroughly prepared, with all her surroundings scientifically healthy, and with chloroform at hand to help her through any suffering, such fears are indeed needless. The very fact of letting the mind dwell upon them will militate against an easy and safe parturition.

In such a nervous condition it is wise to send for a doctor, who will make an examination and set the mother's mind at rest.

It is now that there is a definite *decrease in size,* as the head of the child sinks down into the pelvis in preparation for labour. This is commonest in a first labour, and brings much relief to the woman. She is able to breathe more freely and to sleep better, and is more inclined for active exercise. Indeed, it is a very old joke, that feeling more energetic, the mother is apt to embark on a grand house-cleaning at this point, and is interrupted in the midst of it by the commencement of her labour-pains.

False pains begin some days or even weeks before the labour pains begin, and may cause much discomfort.

They are like the pains of colic, starting now in one place, now in another, running down the thighs, loins, or to the back. They are not "grinding" in character, nor accompanied by any discharge or "show."

They are commonest in a first pregnancy, and usually disappear on taking a dose of castor oil and peppermint water. Gentle rubbing of the abdomen, or hot water bottles, may relieve the discomfort and should be tried when it is so great as to prevent sleep.

Other signs that labour is near are the increased irritability both of the bladder and rectum, which are due to the settling down of the womb when the child sinks.

At the same time, walking and standing in some cases become more difficult, and there may be slight swelling of the vulva, with a great increase in the secretion of mucus and leucorrhœa. This "show" of gummy mucus may be stained with a little blood, but this need cause no alarm, as it is a sign that true labour (*i. e.*, the dilatation of the mouth of the womb) has commenced.

During all this time painless contractions of the womb are going on, and as these gradually become regular and more sharply felt, "true labour" is said to have begun.

The *progress* of labour is often very rapid from this point. When all is favourable, and when the pregnancy has been used as a time of preparation and steady building up of the mother's strength, the labour may only last three or four hours from first to last. With the first child the labour is apt to be rather longer, and may even last for 12 or 18 hours. Pregnancy in late life will often involve a rather tedious labour.

LABOUR.

The *first stage of labour* is ushered in by regular pains which soon take on a "grinding" character, and such pains are the signal that the time has come to send for the nurse and doctor. It is by these painful contractions that the mouth of the womb is opened up.

We know that the child is suspended in a closed bag filled with fluid within the uterus. With each pain, the "membranes" forming the "bag of waters" are forced down through the mouth of the womb, which they gradually dilate, and so prepare the way for the child's head to pass out.

Instead of breaking when all is ready for the child to be born, the "bag of membranes" is sometimes so strong that it is pushed down in front of the child's head, which emerges covered by a 'caul' or piece of the membranes. As this involves some delay, the nurse must always scratch through the membranes so as to free the child's head before it is born.

If, on the contrary, the "bag of waters" breaks early in the labour and discharges the fluid, a doctor should at once be called, as this accident may cause delay also.

The first stage of labour ends when the mouth of the womb is fully dilated and at this point there is often some sickness, shivering and excitement.

Sick labours are usually favourable, showing that the womb is opening quickly.

The pains now become more 'bearing down' in character and return at quicker intervals, so that they soon effect the expulsion of the child from the womb and passages.

During this *second stage of labour*, which may only last a short time, the exertions of the mother cause a

profuse perspiration to break out, and cramps down the thighs may cause her great discomfort.

In 95% of the cases the head of the child emerges first, the shoulders and body following. Sometimes, after a very long and tedious first stage, the second stage of labour is very quickly got through. But in any case, patience and cheerfulness are valuable assistants. The mother should remember that every painful contraction is effectively doing work, even if she herself is not aware of any progress being made.

As the head emerges from the passage, the fleshy floor of the pelvis (called the "perineum") is tightly stretched over the front of the head of the child, and is liable to rupture in a first delivery. A good doctor will be able to prevent this from happening, and it is just here that a little chloroform is so useful, in preventing the mother from straining down too much.

If the "perineum" does get torn, it must be stitched up—a very trifling operation when it is done at once, without any delay at all.

The *third stage of labour* consists in the expulsion of the after-birth or 'placenta' from the womb, by the breaking through of the blood sinuses that attach it to the wall of the uterus. This takes a little time, and it is really best for the mother when there is an interval of fifteen or twenty minutes after the birth of the child. A few slight pains are felt, and then a severer one expels the fleshy mass with the "bag of membranes" attached.

There is of necessity some slight loss of blood during this part of the labour, but if the womb contracts well, the open mouths of the broken blood vessels are compressed, and hæmorrhage prevented almost from

the first. The child is not to be separated from the mother by tying the navel string until the 'after-birth' has come away, or at least till there is no pulse to be felt along the navel.

CHAPTER VIII.

THE MANAGEMENT OF LABOUR.

THE regular definite "pains" will show that the mother is now ready for the real work of labour, and she should settle down to it with a good heart.

The room should be kept cool and airy; indeed, it is well to have two or three rooms ready for her use during the first stage of the labour, when she will find much relief from walking about.

In this way her mind will get some distraction in the intervals between the pains, and her bed-room will keep fresh for the lying-in. A crowd of sympathetic friends is the last thing to be desired; the nurse and one calm judicious friend is all that the mother needs at this time of trial.

When a "pain" comes on, she may take up any position that gives her most ease, whether sitting, standing and leaning over a chair, or any other.

But between the pains she should keep walking about, for this helps the progress of the first stage and assists the descent of the child. But little food is needed throughout labour. A cup of hot tea or gruel every

few hours is all that is needed—and drinks of cold water or lemonade (not iced) for the thirst.

As each "pain" comes on, it gradually increases to a maximum, and the mother may feel inclined to strain and "bear down" with the idea of hastening matters. Such exertions are quite useless and only waste her strength. When the proper time comes with the expulsive pains of the second stage, she can then strain down with benefit. But even then, no such efforts must ever be made between the contractions. Nature provides for involuntary straining with each painful contraction.

When the doctor arrives, it is necessary for him to make a careful examination, for which purpose the mother must lie down on the bed.

In the not uncommon case of a mother being as yet without a nurse at this juncture, she should prepare a basin of antiseptic lotion (Lysol or Perchloride of Mercury) for the doctor's hands. The vulva should also have been thoroughly washed with soap and water, and then cleansed with the same lotion just before the examination.

From this examination the medical attendant will be able to assure the mother that all is well and that true labour has commenced. He will also detect and rectify anything he finds wrong, and be able possibly to judge how long the labour is likely to last. If all goes well, there is no need for further examinations, which if made frequently are apt to retard the labour.

When the pains are chiefly in the back (back labour), some relief to the suffering may be found from the nurse pressing the back firmly during a "pain". A thin pillow between the hands and the back will distribute

the pressure and prevent any bruising of the muscle. If however the contractions are concentrated in front, the nurse may make firm but gentle pressure with the palm of the hand on the upper part of the womb just while the "pain" lasts, unless it is disagreeable to the mother.

It is very good for a mother to lie down and try to get a few minutes' sleep between the pains, as this refreshes the system and prevents exhaustion.

When the second stage has begun, the mother must keep entirely on the bed and not leave it for any purpose. If she gets up, there will be danger of the child coming suddenly out on to the floor or elsewhere. She may lie either on the back or side. Some women like to have a strong sheet or bandage attached to the foot of the bed on which they pull hard during a "pain." This is apt to encourage too severe straining, and may result in much soreness of the muscles and neck which lasts for days.

If *cramp* is now troublesome, the nurse should rub and manipulate the muscles of the thighs and back; also the mother should change her position frequently from the sides onto the back and so on, to relieve the muscular strain. It is, however, a sign that the head of the child is low down and will soon be born.

Chloroform is a great relief at this time, and may be given as each pain approaches, but never in sufficient amount to suspend consciousness altogether.

It is not possible to measure the boon that chloroform is to the woman suffering in childbirth, and no doctor will withhold it except when he considers it necessary to do so in the interests of the mother or child. It must, however, *never* be administered unless the doctor be

present. Sad fatalities have happened where this rule was transgressed.

Though not entirely free from danger, it appears as if chloroform could be more safely administered during labour than in many other circumstances. It should, however, not be begun too early, and never till the second stage, or the labour will be tedious and the child will be suffocated by it. Hence, the mother must control her impatience of suffering, and trust her medical attendant to know when it can be given with safety. When not administered for too long, or to cause deep unconsciousness, it does no harm to the child, and saves the mother from the exhaustion that results from severe pain.

A few drops are poured out upon a little absorbent wool placed at the bottom of a tumbler. At the approach of each "pain," the tumbler is brought near the nose, and the mother may sniff up the drug to dull the pain.

With the consciousness of such a means of relief when the "pains" increase, there is little need for the young mother to make those frantic appeals for interference which are so trying to the medical attendant, who knows that the only result of his meddling with the natural process of labour would be disastrous to both mother and child. Patience and self-control will do more to hasten the safe termination of labour than any such unnecessary interference.

As the head of the child comes down to the outlet of the passages, the nurse will gently *foment the parts* with soft cloths or wool, wetted with hot lotion.

This is most comforting to the mother, and softens the parts so that they are less likely to be torn through.

Oil should not be used for the parts, as it is not clean.

When the head slips out, the nurse, or the mother herself, must place her hand on the upper part of the womb and make firm pressure upon it when the child is being expelled. If, as may happen in isolated stations, the mother is alone without skilled help, she must make her ayah or attendant hold the womb firmly, and keep the hand upon it for some time, even after the 'placenta' or after birth has separated. In this way it will not be possible for the womb to fill up with blood as the placenta is coming away, and the firm grasp of the organ also prevents the hæmorrhage so common in hot relaxing climates.

If at any time during labour *the pains go off* and the mother gets discouraged, thinking no progress is being made, she may take 20 drops of *chlorodyne*, and make up her mind for an hour or two's sleep. She will wake refreshed, and with renewed contractions the child is soon born.

Or if this happens in the first stage of labour, it may be due not only to fatigue but to some rigidity of the mouth of the womb, which delays the dilatation. In that case, a very hot Sitz bath taken for 15 or 20 minutes, or a hot douche to the vagina, are very useful and comforting in relaxing the parts.

If a mother is weakly or anæmic, she may get faint just after the child is expelled, owing to the relief from pressure weakening the heart's action. Here it is wise to guard against such a collapse by replacing the lost pressure with a tight bandage or folded sheet round the waist, which is pulled upon by an assistant and tightened after the womb has emptied itself.

The relief and joy of the mother when the labour ends with the delivery of the child, are followed by a sense of fatigue and exhaustion which show the need for rest.

After the babe is born, it is covered over with a warm dry towel to prevent loss of vitality, and has its eyes and mouth cleaned with a piece of absorbent wool soaked in warm water or Boracic lotion.

If the afterbirth comes away directly after the child, there is no need to wait, but the navel string may be at once tied 2 inches from the child's navel, and cut off just beyond the ligature.

Otherwise the nurse should wait until the pulse felt in the cord ceases and then, having washed and sterilized her hands, she will apply two ligatures, one as above, 2 inches from the navel, and the other close up to the vulva.

The cord is severed with clean scissors which have been boiled and kept lying in lotion, and the child is then separated from the mother, wrapped in warm cotton wool and a flannel blanket, and popped into his basket with a hot water bottle. There he will stay quietly for a few hours, learning to sleep, breathe, and get used to his new surroundings before being subjected to further handling.

At the close of labour, the mother must now in any case lie upon her back, in order that the nurse may control the uterus and prevent bleeding. She will keep up the pressure with her hand, and in 15 or 20 minutes, after a few painful contractions, the womb will become smaller and harder, and the descent of the silk string on the navel will show that the afterbirth has come down into the vagina.

Sometimes it is expelled completely outside the passages at once, with its "bag of membranes" complete. But if these still remain attached to the inside of the uterus, when another pain comes on, the organ may be pressed downwards and back with the hand placed on the top of the womb, to free them. In other cases it may be necessary for the nurse to remove the afterbirth with her hand from the passages, and free the grasped membranes, or coax them out by turning the placenta round two or three times.

The mother must submit patiently to all such handling, knowing that if any piece of the membranes or placenta should be left behind it is sure to cause fever, and other serious consequences which will cause her far worse suffering.

The womb should be gently rubbed and kneaded all the time, to expel any clots that may form in it, and indeed the longer it is held and 'controlled' after delivery, the better: it should not be left till it is felt as a small and well-contracted hard ball just above the pelvis.

There should be no hurry here, any more than in any of the first stages of labour.

A teaspoonful of Extract of *Ergot* may be taken in a little water if the womb is slow in contracting, and when there is much bleeding, the dose can be repeated every 3 hours during the first day. It cannot too often be repeated that the best way to avoid such loss of blood is for the mother to allow the uterus to be well grasped and kneaded in the way just described.

The nurse now quickly removes all the soiled clothing, and washes the external parts and vulva with warm water and soap, and lastly with Lysol lotion.

Next, the clean bed pan is slipped under the hips, and the *vaginal douche* is to be given. This should never be omitted in India, and when properly administered, there are no dangers from it, while the advantages are many.

The douche clears away the small blood clots, and the tiny pieces of membrane and débris of all kinds, which, if left behind, may decompose and cause fever and blood-poisoning. It also washes away any germs already introduced during the course of labour. Lastly, it stimulates the uterus to contract well and expel any small clots, while it soothes the bruised or torn vagina passages.

The first douche will be given by the medical attendant himself, but all the above reasons hold equally good for continuing the douche twice a day during the first week of lying-in, when the trained nurse will administer it. No unskilled half-trained person should be trusted in this matter, so that if the mother is without skilled assistance, she must forego the comfort of this *post-partem* douching.

The points to be carefully attended to are—

(1) The douche-can and rubber-tubing should be scalded with boiling water and well washed with Perchloride of Mercury lotion just before use each time.

(2) The 'fountain' reservoir must be used, and it should not be hung up more than 2 feet above the bed.

If a doctor is present, he will now also wash out the womb thoroughly should it remain soft and uncontracted, as is commonly the case in the hot weather.

The douche given daily to cleanse the parts is especially necessary in Indian households, where sanitation is often faulty, and other precautions are neglected at this important time.

(3) The vulva of the patient should be well washed and sterilized with lotion just before the douche is used, and the nurse's hands also.

(4) The nozzle of glass should be daily boiled, and thereafter kept soaking in strong Lysol or Perchloride of Mercury lotion till used.

(5) The water should be flowing freely through the nozzle before it is introduced into the vagina, so that the tubing may be quite free from air.

(6) The nozzle is introduced for 2 inches into the vagina while one hand holds the parts wide open. Then the left hand is kept firmly pressing upon the top of the womb the whole time that the water is flowing. At the end, the passages are emptied of any lotion that remains by gently depressing the womb backwards and downwards.

The best lotion for such douching is Lysol, one teaspoonful to each pint of sterile water; carbolic acid or other antiseptics may be ordered by the medical attendant.

The vulva is dried with clean wool, the bed pan removed, and a pad of 'Gamgee' dressing or antiseptic wool applied over the vulva and bandaged on.

About six or eight such pads will normally be needed during each 24 hours for two or three days.

Every time the pad is changed and urine is passed, a jug of warm Boracic lotion should be poured over the vulva into the bed pan to cleanse and soothe the parts. This is most grateful to the mother, and assists her to empty the bladder properly.

The *binder* is usually considered a necessity in the first few days, and certainly seems to add to the comfort of the mother by supporting the abdominal walls, which

are lax from overstretching. The simplest form of binder is a straight piece of flannel or cotton cloth 1½ yards long and 15 inches wide, which is applied not too tightly, and without any pad under it. So worn, it is supposed to assist the action of the bladder and bowels; but later after a week or so, it is best to permit the muscles to exercise themselves without such support, which tends to weaken them if too long kept up.

Sometimes the abdominal muscles remain flabby and weak, so that the bowels protrude in the midline. When there is such an old protrusion, the nurse should massage the muscles constantly upwards and downwards on each side, while the mother remains in bed.

Position.—For the first six or eight hours the mother should lie quietly on her back, but after that time a change of position to the sides or on the face is advisable, though there should not be too much tossing about.

The whole delivery being now safely over and the mother's toilette finished, she may be given a cup of warm milk, tea, or gruel, and left in quiet to enjoy the long sleep which is so grateful and much needed after the exertion of labour. The room may be darkened, and no talking or visitors allowed in to disturb the mother. Someone has suggested that the prayer 'Lord, I am delivered safely of my child, now deliver me from my friends' is a very appropriate one at this point. Indeed, no visitors from without should enter the lying-

The Indian mother has to endure many things from the crowd of sympathizing excited friends who fill up the room till the air is foul, and the mother a mere bundle of nerves. Such foolishness results too often in the suffering or death of the young mother.

in room for quite 5 days after labour is over, to ensure for the mother that quiet mind, and freedom from infective germs, which are essential to a good recovery after child-birth.

CHAPTER IX.

Emergencies of Labour—Delayed Labour—Rupture of the Perineum—Misplacements of the Child—Convulsions—Retained After-birth—Flooding—Death of Fœtus—Still-Births.

DELAYED LABOUR.

NOTHING tries the patience of the young mother more than a tedious labour, and she and her friends are naturally inclined to become anxious and perturbed as hour after hour passes without any apparent progress.

It is not always possible for the medical attendant to say why there is delay of this kind in one pregnancy, when perhaps the same mother has had quick and easy labours several times before. But this we do know, that a slow and tedious labour may be just as safe as a quick one—provided no improper means are used to interfere with Nature's method of delivering this particular child into the world.

It is the greatest mistake to urge a patient to "bear down" vigorously with the pains; the medical attendant is the only person who is capable of issuing such directions as are wise in all these matters, and he alone

can judge when the right time has come for rendering assistance in a case of delayed labour.

But supposing no doctor is available, and the pains are feeble and slow, while many hours have passed since labour commenced, then there are certain simple measures which may be tried, with a view to stimulate the womb to contract.

A *hot water douche* to the vagina, or if this is not possible, a hot Sitz bath, may be taken, while a hot *enema* to the rectum will also help to relax the parts.

Hot and cold cloths applied externally to the top of the womb may stir up more efficient "pains," or ten grains of *Quinine Sulphate* dissolved in a teaspoonful of sherry will have the same effect.

When the inactivity results from debility or exhaustion of the mother, plenty of warm drinks (milk, tea or coffee) may be given her, and she should be given a dose of *chlorodyne*—20 drops in a little water—put to bed, and encouraged to have a long sleep. When she wakes up, vigorous pains will ofttimes recommence.

Much assistance may also be given by an intelligent attendant as follows :—

Placing her hands on the abdomen over the upper part of the womb, she will grasp it with both hands and then make gentle firm pressure downwards for six or eight seconds. She will then rub the abdomen round and round over the top of the womb, and again make the pressure downwards for a few seconds. This manœuvre is most useful in the second stage of labour, when no progress is being made, although the head of the child is low down. The mother must lie on her back with her knees drawn up, and the attendant stands at her right side facing her feet.

In a tedious labour from any cause neither alcohol in any form nor Ergot, can be safely taken; in fact, they are most dangerous drugs to give at this time.

It is sometimes found that if the mother varies her position, now lying down on the bed, now walking about, the changes rouse the inactive muscles to contract.

A doctor ought to be summoned in all cases of delay in labour, but a cheerful, hopeful mind will have much effect in calling to action the defaulting muscles and stimulating them to fresh action.

RUPTURE OF THE PERINEUM.

In a first pregnancy there is usually a slight tear of the soft parts at the outlet of the pelvis, but unless it is extensive and deep there is no need of stitching it up. All that is required is extreme cleanliness, and the daily douching with Lysol lotion.

The best means of guarding against such a sad accident of labour is for the mother to take her daily Sitz bath and enema in the later months of pregnancy, while warm fomentations and support of the parts near the end of labour also prevent it from occurring. The nurse must carefully look to see if the parts are torn after labour.

MISPLACEMENTS OF THE CHILD.

These are on the whole most uncommon, and if a medical man examines the mother a short time before she expects her labour, he will be able to detect and correct the malposition. Most children come by the

head, but sometimes a child is born by the 'breech,' or with the buttocks lowest, in a sitting posture.

There is nothing dangerous to the mother in this, but the labour is often rather tedious and much patience is needed. When the attendants get impatient and try to pull the child out, much harm will result, and the child will probably stick fast.

The time when assistance is really needed is when the body has all been born, but the womb has no power at the last to expel the small head of the child. Then, if no skilled help is near, the only way of saving the child's life is by quickly extracting its head. The right way to do this is not easy to describe, but an attempt must be made by the following manœuvre. The attendant will place one hand and arm under the child's body, and draw down the face with two or three fingers pressing on the upper jaw of the child.

Two fingers of the other hand grasp the neck, and then the whole body of the child is to be raised well up and forwards towards the mother's abdomen. It is useless for an unskilled person to attempt to free the head in any other way, and a short delay will result in the death of the babe.

In *twin pregnancy* the labour is often quite as easy as that with one child, and there is usually less pain owing to the children being small.

Usually, however, there will have been more sickness than is usual in the early months of pregnancy, and more breathlessness and discomfort later.

After the first child is born, the "pains" may cease altogether. If they do not return soon, it is not wise to wait longer than half an hour before sending for skilled assistance.

CONVULSIONS.

These may occur at any time, before, during, or after labour.

There have usually been some warning symptoms, such as, headaches and dizziness, swelling of the face and limbs, or scanty urine, showing themselves in the later months of pregnancy.

Treatment.—The fit, which consists of violent movements of the limbs and twitchings of the face, may last some minutes, and nothing can be done during it except inserting the handle of a spoon wrapped in a handkerchief between the jaws to separate the teeth.

Hot water bottles, and a hot "wet pack" to the whole body are useful by inducing the skin to act freely, and a hot water enema may also be given, containing 2 ounces of Epsom Salts and one ounce of Glycerine. This may be repeated every two hours until the doctor arrives. When the mother is able to swallow, one ounce of Castor oil is to be given by the mouth, and then small amounts of liquid food every two hours or so.

When these fits recur, the woman remaining unconscious in the intervals, it is very necessary not to lose time. Half a drachm of Bromide of Potassium is to be dissolved in a couple of ounces of salt solution, and injected into the rectum every four hours. The moment any fit occurs in a pregnant or parturient woman, a skilled doctor must be sent for, however far away he may be, as this condition is a dangerous one.

RETAINED AFTERBIRTH.

One accident of labour for which a nurse must always be prepared is the failure of the "afterbirth" to come away within a short time of the child's birth. It may

be closely adherent to the walls of the uterus, or the mother may be so fatigued and weak, that the womb fails to contract strongly enough to expel it at the proper time.

Treatment.—If at the end of half an hour there have been no pains and there are no signs—such as the descent of the navel-string—showing that the placenta has left the womb, then the nurse must try vigorous rubbing of the top of the womb. Taking it between her hands she must press and knead it firmly, directing some of her force downwards and backwards whenever the organ contracts and hardens under her hands.

On no account whatever must the navel cord be pulled upon in any attempt to remove a retained placenta, as this will cause great bleeding and perhaps the death of the mother.

These manipulations must be persevered in for half an hour, however disagreeable they may be to the mother, and it is rarely that they fail to produce the birth of the placenta. Should they not do so, a doctor must be fetched, and meanwhile the mother must lie quite still upon her back until help comes, the nurse removing soiled cloths from beneath her, and making her as clean and comfortable as is possible during the long wait. The hand of an

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It is well known that Indian and English women whose confinements occur during the hot season in the plains, are very liable to delay and trouble during the 3rd stage of labour, owing to the womb being relaxed.

If delay has occurred, the attendants should make a rule of thoroughly washing out the womb directly after labour, to ensure that pieces of membrane or clots are not retained, otherwise Septic fever may set in so rapidly that the life cannot be saved.

attendant or nurse should be keeping control of the womb all the time until it is emptied, and felt to be firmly contracted.

FLOODING.

Hæmorrhage either during or after labour is not common where the pregnancy and labour have been properly managed.

The usual causes of bleeding are, neglect of the bowels and bladder, and also trouble with the delivery of the afterbirth and membranes, pieces of which may be left behind, and interfere with the complete contraction of the womb.

A warm douche immediately after labour will ensure all such remnants being washed away, and attention to all the directions given before as to controlling and massaging the uterus, will usually prevent this serious complication of labour.

Treatment.—Whether the bleeding be slight or severe, whether it comes on early in labour, or during the lying-in period, the first essential is for the mother to lie absolutely quiet upon her back, with the foot of the bed raised and her head low.

The nurse must see that the bladder is empty, if necessary by passing the catheter, and the hand must take a firm grasp of the top of the womb and knead it vigorously.

A very hot douche of water is then got ready, and the womb thoroughly washed out to remove clots and pieces of placenta that may have been left behind ; the rubbing of the top of the uterus must not cease till it is felt hard and well contracted after all bleeding has

ceased. The douche must be given with all the precautions mentioned in the last chapter.

Sometimes the hæmorrhage comes on during the third stage of labour, in which case, after pressure and rubbing the womb has been tried, the nurse will have to remove the afterbirth with the hand. The mother's vulva and the nurse's hands must be thoroughly washed and sterilized with lotion, and then the hand is gently inserted into the womb and every particle of placenta and membranes carefully removed. Next a very hot douche at 117°—120°F. is to be given, while the uterus is grasped all the time to prevent it from relaxing and filling up with blood.

This is an emergency in which there is no hope for the mother except from the above prompt and vigorous treatment; time should not be lost while waiting for the doctor to arrive.

Putting the babe to the breast, even if there is no milk for it, also stimulates the womb to contract, and should be tried with the other means.

After the attack is over, if the doctor has not arrived, a teaspoonful of Liquid Extract of *Ergot* may be given every 2 hours. Warm liquid food only should be given for a day or two.

In case the mother is very weak and collapsed, the warmth of the body must be kept up by hot-water bottles in the bed. No brandy or spirit should be given on any account, as they might start the hæmorrhage again.

DEATH OF FŒTUS.

It occasionally happens that the child dies some time before birth. How shall the mother know that

this has occurred at any time ? First of all, the movements which may have been very noticeable, cease suddenly ; this, however, taken alone, is not sufficient proof, as the movements of a living child will cease sometimes during the last month of pregnancy. Next, feelings of malaise, and depression, loss of appetite, feverishness and restlessness at night, point to this accident. In a few days' time there may be a disagreeable smelling discharge ; and finally, true labour pains begin, the child being usually expelled within two weeks of its death.

The only *treatments* possible are prolonged douches containing Lysol, and rest in bed, while the doctor is sent for.

Here I would say a word about *Consultations.* Often the patient and her friends are very much alarmed when the doctor in attendance on the labour proposes sending for the help of another physician ; they seem to think she must certainly be dying for this to be necessary. In any prolonged labour where the delivery can be quickly and safely accomplished by the help of instruments, skilled assistance is a necessity ; and indeed, in evey case it should be considered a sign of wise care and caution when counsel is asked for by the medical attendant.

STILL-BIRTHS.

A child may make no attempt to breathe when first born, in which case it is described as being 'still-born.' The ordinary healthy infant cries a little directly it is born, but when the mother has been put deeply under the influence of a chloroform, the child only takes an occasional shallow inspiration, although the

pulse in the navel string may be beating strongly; it will soon recover from this unconsciousness.

Other causes of delayed respiration are, tedious labour, and exhaustion of the mother.

(1). In *Simple Asphyxia*, the child is getting plenty of blood through the cord, but its limbs are rigid, the chest not moving, and it is a deep *blue* in colour owing to there being some obstruction to the entrance of air into the lungs.

Treatment.—The throat and mouth must be quickly wiped out with the finger covered over with soft rag, to clear away the mucus. Then the child is held up by the feet to permit of fluids running out of the air passages, while it is patted on the buttocks and back; then if it is making efforts to breathe, it may be laid on a blanket on the floor and gently rolled to and fro, on to its side and back, for a few minutes.

When the infant makes no attempt to breathe, air will have to be blown directly into its lungs by another person. The child is wrapped in a flannel and laid on the knee. With one hand the nostrils are to be held tightly closed, while the other hand is placed upon the child's abdomen.

Then filling her own lungs up with air, the nurse blows forcibly into the mouth of the child; the nose is then let go, and the hand makes strong pressure upon the abdomen so as to drive the air out of the lungs. This alternate inflation and compression of the chest must be continued until natural breathing has commenced, and the child is no longer blue.

(2). It is not so easy to revive a babe who lies limp, *white and pulseless* after its birth. In birth by the breech the cord is sometimes so pressed upon that the

child is deprived of its lifeblood and can with difficulty be re-animated. If deeply under chloroform, the mother's blood is apt to poison the child, which is born in this collapsed condition.

Treatment.—The cord is to be quickly tied and severed, and the infant plunged into a basin of hot water. After clearing the throat of mucus and blood, artificial respiration should be done, the child remaining in the bath all the time.

An assistant supports the head, and the nurse raises the child's arms straight above its head, at the same time arching the child's back. The arms are then lowered, and the chest compressed between the two hands to drive out the air. All this time, the assistant may with one hand draw forwards the tongue of the infant, so that it does not fall back and close up the wind pipe.

A few drops of brandy rubbed upon the gums and inside the mouth sometimes stimulates the breathing, and when removed from the bath the babe should be quickly rubbed with hot oil containing a teaspoonful of brandy. These means of resuscitation may be kept up for at least one hour, as life is often slow in returning to such collapsed infants.

Such children will need to be very carefully watched for some days after birth, and must not be disturbed for baths or otherwise handled.

Indeed, the more difficult it has been to make a child breathe and re-animate it, the longer it will need special care, in case of it again becoming collapsed at any time.

CHAPTER X.

The Lying-in Period and its Complications—The Discharge—The Bowels—Piles—White Leg.

THE LYING-IN PERIOD.

THE first requirement of a mother after the labour is all over is *rest*.

A clean cool fresh bed to which the weary mother can be removed will often be found to induce sleep in those who are excited, restless and nervous. The second bed must be brought side by side with the one on which she has lain, and then the patient is moved by 4 persons, each holding one of four corners of her sheet, mackintosh and blanket.

In this way she herself will make no effort whatever but the change should not be made if it is against her wishes, or if she is in any way exhausted or collapsed from severe pain or bleeding.

Then the babe may be shown to the mother, to satisfy her solicitude about it, and at once removed from the room to ensure perfect quietude while the mother sleeps for a few hours.

If sleep tarries, *warmth* is of great value also. Besides the warm drink of gruel or milk, hot-water bottles to the feet and spine, with an extra blanket, may be applied. No one can sleep when cold, and often a reactionary chill is experienced after a tedious labour.

When the mother is faint and exhausted from labour, an injection of one pint of warm water into the rectum acts as a safe stimulant, allays thirst, and promotes sleep.

Sleeplessness may also be due to the *afterpains*. These are not common after a first confinement, but are apt to get worse in each succeeding pregnancy. They appear to be merely painful cramps of the muscles of the womb, and are excited by putting the child to the breast, or by the passage of small clots and pieces of membrane, where no douche was given after the labour to wash these away and ensure firm contraction.

They pass off after two or three days and need cause no anxiety. If severe, the pain is often relieved by hot fomentations over the womb, and very hot vaginal douches; 5 grains of antipyrine taken in hot coffee also relieves the spasm when it is acute.

If the mother suffers from chronic constipation, a dose of castor oil containing 20 drops of chlorodyne will relieve the colicky pains, which are often mistaken for true afterpains.

The mother will probably wake refreshed after some hours, and feeling hungry. The first thing then requisite is to see that the bladder is emptied.

There may be some difficulty about this at first, especially if she is quite unaccustomed to the bed pan. If unable to use this, she may turn over on her face with a small vessel under her. Next, hot fomentations and a hot vaginal douche may be tried; also tightening up the binder and gentle rubbing of the abdomen. If none of these means succeed, the urine can be easily and painlessly drawn off with a catheter.

The bladder must be emptied at least every 8 hours, and a jug of fresh warm Boracic or Lysol lotion poured over the vulva to cleanse the parts each time.

The morning and evening douche, given with all the precautions mentioned before, is cleansing and comforting to the mother, and prevents the severe form of Leucorrhœa ("Whites") so common after a confinement in India.

During the first few days of lying-in the mother should have light food, chiefly fluids, egg flips, gruel, soups and tea.

From the 3rd to the 6th day light solids, milk puddings, eggs and fish may be added. Next, light meat, chicken and game can be eaten, but red meat is best avoided till the 9th or 10th day.

The system has to throw off large quantities of waste material from the rapidly diminishing uterus, so that too much solid food cannot be absorbed.

At first this diminution is very rapid, the weight of the uterus falling to one-half by the end of the 2nd week. Heschl found by experiment that the uterus weighed immediately after labour 22—24 ounces.

At the end of 7 days, weight was 18 ounces.

,,	,,	14	,,	10—11	,,
,,	,,	21	,,	5—7	,,
,,	,,	28	,,	3-4	,,

At the 10th day the womb may not be felt above the pelvis, but it is still very large, and *it is not till the end of two months that it is restored to its natural size.*

If all mothers learnt and realized what these facts mean, there would be less impatience to get up soon after labour, for it is obvious that to sit, or stand erect, while the womb is so large and heavy as it is at 14 or 16 days, involves great danger of producing displacements or some degree of "falling of the womb."

Besides this, all mothers must be aware that the tissues of the vagina and ligaments have been so over-stretched that it will of necessity be a long time before they regain their "tone," and contract sufficiently to support the organs.

On the 10th day the mother may be lifted, lying flat, on to a sofa or couch, and carried out of doors for a few hours. She may sit up on the 20th or 21st day, and begin to walk a little on the 28th day.

Plenty of pure fresh air will promote a rapid convalescence, so the mother's long couch may be out of doors all day.

If on first sitting up the slightest pain in the back is felt, or if any red discharge returns on making the exertion, the mother must instantly return to bed and remain there till seen by the doctor.

THE DISCHARGE.

For three or four days after the delivery there is loss of a red discharge which oozes from the raw surfaces in the uterus. This varies greatly in different women, but as a rule it changes to pink and brown on the 4th or 5th day, and thereafter gradually passes into a yellow or pale greenish fluid, which lasts till the end of the 3rd week.

There should not be any clots with this discharge, and it should not come away too freely; six pads changed in the first 24 hours is the normal.

Mental excitement, strong purgatives, or sitting up in bed, may cause *severe hæmorrhage;* also pieces of the 'placenta' and membranes retained in the womb may cause free bleeding.

It is easier to avoid the causes than to stop the bleeding. But the first thing is to make sure that it is not due to anything remaining behind in the womb, and for this the doctor should be summoned. Meanwhile, the mother will *keep quite still* lying on her back, while the nurse will massage and knead the womb vigorously through the abdominal wall, and give a dose of Ergot.

If any offensive odour appears, it should at once be reported to the physician. For if the mother is kept thoroughly clean, the normal discharges are quite free from such smell, which is due to some decomposing clot or other matter which should not be there, and must be quickly got rid of.

If no doctor is obtainable, the nurse must rub the uterus, give very hot Lysol douches, a teaspoonful of Liquid Ergot two or three times in the day, and plenty of liquid food.

It is always well to raise the head of the bed higher than the feet, so as to assist drainage in these cases, and a daily enema will keep the bowels free without weakening the patient.

All such complications of a normal labour may be avoided by proper management during and after labour, especially by the use of douches and washings out with antiseptics, to ensure strict cleanliness of all the parts.

The Temperature should be taken every morning and evening, and any slight rise reported to the doctor.

Malarial attacks are quite common after the exhaustion of labour has lowered the resistant power of

the mother, especially if Quinine has not been administered.

Constipation, excitement of any kind, or the poisoning of the system by decomposing clots or pieces, left behind in the uterus, are other common causes of fever.

The discharges cease suddenly when the fever is due to this cause, but in the milder cases there may only be an offensive odour to point to this condition.

Fever may also be due to over-distension of the breasts with milk the first day or two after it flows into the breasts, though "breast fever" does not exist.

A purge, and hot fomentations to reduce the swelling, are all that is needed for reducing the fever also, or if necessary, the milk is to be drawn off by the breast pump.

In these days of strict antisepsis the occurrence of true "puerperal fever" is rare—indeed, it can only result from the grossest carelessness in nursing, and from mismanagement during labour.

After the first six hours, the mother may lie as she likes on the bed, occasionally turning over on the face, sides, and back (lying too much on the back promotes retroversion). She should not sit up till the 21st day, and should not stand and walk till the 28th day.

THE BOWELS.

If the *bowels* were completely cleared by an enema just before the confinement, they will need no attention till the morning of the next day but one after labour; then, if no natural action has been obtained, the very best purgative is half an ounce of castor oil. This also acts slightly upon the infant and helps to clear its bowels.

If castor oil cannot be taken, the best alternatives are Liq. Extract Cascara Sagrada, or confection of Senna (one drachm). Epsom Salts or other drastic medicines must not be given, as such strongly affect the baby. Before the oil acts, an enema is usually needed as well, to soften the hard masses in the rectum.

Where there has been marked constipation before the confinement, it is well, on the morning after delivery, to inject 3 ounces of pure olive oil into the rectum; and follow it up half-an-hour later by a hot soap and water enema. Then the dose of castor oil will act easily. This should always be the routine if the perineum has had to be stitched.

After the 3rd day a daily enema of warm water is usually sufficient to ensure a thorough evacuation for the nursing woman. But if the bowels continue very sluggish, rubbing and massage of the abdomen, olive oil each morning, followed by a glass of hot water, should be tried, and the diet regulated as described under "Constipation."

Should the abdomen swell up after the 2nd or 3rd day and much flatulence and pain be complained of, a turpentine fomentation should be applied to the abdomen. Take a piece of flannel folded double, and wring it out in very hot water to each pint of which one teaspoonful of turpentine has been added. This may be kept on by a towel pinned over it, for two hours. Do not sprinkle the turpentine upon the flannel. At the same time a *turpentine enema* is very useful. Half an ounce of turpentine is to be well mixed with four ounces of olive oil and then stirred thoroughly with one pint of hot soapsuds in water, and injected with an enema syringe into the rectum. If this does not relieve the

distension and pain, and if fever comes on, the doctor must be called.

PILES.

When bad piles are present, castor oil should be avoided, and enemata given daily after confinement. If any drug is required, Cascara, or 3 grains of Calomel, may be given. Usually the piles subside very quickly after removal of the pressure. If they are not soon relieved, the appropriate treatment given under "Piles" in Part I may be tried.

WHITE LEG.

This disease, due to a clot forming in the main vein of one of the legs, is not common after confinement. The leg on the 2nd or 3rd week suddenly becomes painful and swells up rapidly. There is generally some feverishness.

Getting up too early from bed, drinking too much milk in the later months of pregnancy, and iron tonics, all favour this troublesome condition, which may prevent any walking for weeks or months. The left leg is commonly affected, but in severe cases, as one leg recovers, the other begins to swell, and the sufferer is thus confined to bed for several months. It is commonest in anæmic and weakly women, and in those who have borne many children. After 3—4 days the leg may have swollen to an enormous size, and will be white and very hard to the touch. It should be from the first raised on high pillows, with a sand bag on each side to prevent it from being moved in sleep. On no account must it be rubbed with any oil or application. Warm fomentations, and painting it over

with Glycerine and Belladonna, will relieve the early pain. It should then be wrapped in cotton wool, bandaged from foot to groin, and kept absolutely at rest. Gentle purgatives, especially the mineral salts, Carlsbad and Friedrichshalle, and a daily enema, must be given. Plenty of lemon juice and water should be drunk through the day, or a pleasant drink can be prepared for constant use as follows :—One ounce of Citric Acid, one ounce of Syrup of Lemon, to one pint of water. Two tablespoons of this in a tumbler of cold water every few hours of the day.

No milk should be given to drink, but light puddings, chickens and fish, and plenty of fruits and vegetables are required. Stewed rhubarb and figs are specially useful. As the swelling subsides and the leg becomes soft, gentle rubbing, from below up with oil to assist the circulation, may be tried twice a day for ten minutes at a time. Alternately hot and cold water sponging also improves the tone of the muscles.

The patient must be kept absolutely quiet till quite well. As long as there is any tenderness at any spot along the leg, perfect rest is essential. On first getting up, the leg must be kept well bandaged from the toes up moderately tightly with a thin flannel bandage. After the first little walk some slight swelling may reappear, and great care must be taken not to do too much in the way of exercise for several months after the confinement.

CHAPTER XI.

Care of the Breasts and Hints on Nursing—Regularity in Feeding—Refusal of the Breast—Deficiency of Milk—Sore Nipples—Inflammation of the Breasts—Abscess of the Breast—Procedure in case of Child's Death.

CARE OF THE BREASTS AND HINTS ON NURSING.

It is best to put the infant to the breast within a few hours after birth; preferably when the mother wakes after her long rest. The babe should be given the breast only 3 times during the first 24 hours, and 4 times during the second 24 hours. It is most important not to let it go to the breast oftener than this without some good reason, nor should it stay longer than five minutes at a time. Otherwise it soon learns to distrust the performance from which it obtains so little satisfaction.

The reasons for letting the infant suck, when as yet there is no milk for it, are that it promotes the secretory activity of the breast, stimulates the uterus to contract and expel clots, and is an excellent preventive of inflammatory conditions.

Besides this, the infant learns to suck, even though at first there is no milk and it only obtains 5 to 6 drops of "colostrum" each time—a fatty secretion which acts as a purgative for the child.

Too frequent nursing at the empty breasts is a frequent cause of sore nipples. If these have been previously prepared and hardened with lotions as described in Chapter I, there should, with ordinary care, be little danger of this. But if the milk is not flowing freely, the baby will chew the nipple with its hard gums instead of merely sucking it with its lips. This rubs off the skin and it soon becomes cracked and sore. Hence

a child should not be left at the breast *too long after it is empty*

If it cannot hold the nipple comfortably and easily, the same thing will happen ; it will try to grasp and chew it with the gums. A large and greedy babe will sometimes injure the nipple in its too vigorous efforts. Here, a nipple shield to protect it from such rough treatment is necessary. If any teeth are found protruding through the infant's gums, they are best removed, or a shield can be used.

When the milk has come into the breast, which usually takes place on the 3rd day, more frequent nursing can be begun. The amount of milk secreted should average about one quart a day. To ensure a good quality and full supply of milk, the mother should take plenty of porridge and gruel, wheat-meal boiled in milk, barley flour in milk, pea, bean, and barley soup, during the first few days. Eggs, fish and fruit are useful later.

REGULARITY IN FEEDING.

This is of the first importance. The infant must be put to the breast every 2 hours from 5 A.M. till 11 P.M. From 11-5 the infant must be removed to another room to secure undisturbed rest for the mother. If it cries in the night, a teaspoonful of warm distilled water will quiet it, and after the first 2 or 3 nights there will be no trouble.

The breasts should be suckled alternately for 15—20 minutes at the most. Some babies are greedy and must be removed before 15 minutes, others are lazy and must not be allowed to fall asleep over the feed. The mother must not be tired and sleepy, but she must give

her attention to the feeding, or she may overlay the babe.

She should be lying on the side from which she is to nurse, and she has to support the infant on her arm with a small cushion under it, so that the nipple falls easily into the child's mouth. The babe must not be in a strained uncomfortable position.

When sucking from the right breast it is not uncommon to find that it cries and refuses to suck with no good reason. Here the weight of the large liver on its right side is pressing down uncomfortably when it is lying on the left side at that breast. Hence the babe must be held with its feet under the mother's right arm, *lying on its right side while drawing at the right breast*, as if it were sucking from the left side.

The mother must take care that the baby breathes freely through its nose. She should place two fingers, one on each side of the nipple to regulate the flow, and prevent it from burying its nose in the breast. At the end of 15—20 minutes, or earlier if it is asleep, the child should be removed. The nipple must be gently washed with weak Boracic lotion, dried and covered with a small pad of absorbent gauze or soft boiled rag to soak up any secretion.

The breasts should then be supported by a *breast binder*. This is a piece of soft calico, about 12 inches wide, which is passed round the back and pinned firmly in the middle in front. This prevents the breasts from dragging down and remaining lax and deformed.

It is not necessary to wash the infant's mouth out after every feed, as this may irritate its delicate mucous membrane. But three times a day the inside of the

mouth may be swabbed out with a small piece of absorbent wool soaked in Boracic lotion.

REFUSAL OF THE BREAST.

The infant may refuse the breast. Some reasons for this have been already mentioned, and often a little readjustment of the baby's position, so that the nipple falls readily into its mouth, will get over the difficulty. If the nipples are small and depressed, or engulfed by a distended breast, the baby cannot get hold of them.

If the nipple is engulfed by the hard and swollen breast, hot fomentations and massage should be tried and some of the superfluous milk may be drawn off, after which the child will be able to seize and draw out the nipple. If flattened, the nurse must depress the breast around the nipple with two fingers of one hand, while she gently draws out the nipple with the fingers of the other hand. The *nipple shield* (to be bought from any chemist) will act well in cases where the nipple is too small and flat to be grasped by the baby.

Again, *the milk may be deficient*, either in quantity or quality, and the child will cry at the breast; if not satisfied, the babe will be fretful and lose weight. Sometimes it is almost choked by a too free flow of milk from an active breast. Here the mother must try to regulate the rapidity of the flow by pressure with her two fingers; or the milk should be drawn off with the *breast-pump* and given to the child.

The best pump is a simple glass bulb with a wide flanged mouth at one side, and narrowing at one end to a long fine hollow stem. To this a piece of rubber tubing 12—15 inches long is attached. The flanged

opening is to be applied firmly over the nipple, and the mother sucks at the india-rubber tube till the air is exhausted, when the milk will begin to flow into the bulb. When the breast is emptied, the rubber tube may be replaced by a teat, and the baby will drink from this the milk that has collected in the bottle. The whole apparatus must be boiled before use each time, and kept lying in a basin of Boracic lotion. A breast-pump is used (1) to relieve distension of overfull or inflamed breasts ; (2) for feeble or sick infants who cannot suck ; (3) in vomiting of infants to draw off the first milk secreted, which sometimes disagrees.

A babe may be dull and too sleepy to suck the breast for more than a few seconds. Constipation or jaundice account for this, and a dose of castor oil or half a grain of Gregory's Powder will set the matter right.

SORE NIPPLES.

These will interfere with proper nursing of the infant. They cause acute pain when the baby sucks, and are also a frequent source of inflammation and even of abscess of breast. No time should be lost in curing the first painful crack that appears, as they do not heal easily. Rest and cleanliness are the most important matters. The nipple-shield should be worn, but if even so, if there is much pain or any bleeding from the sore, nursing from that breast must be given up for two or three days.

The milk will have to be drawn off with the breast-pump very gently used, and given to the child. Should this irritate the sore, hot fomentations and *massage* should be used, and the breast emptied by the following procedure.

The nurse seats herself by the side of the patient supporting the breast in the hand by allowing it to rest in the notch between the thumb and first finger. After applying a little oil, with the four fingers of the other hand, the breast must be gently but firmly stroked towards the nipple, increasing the pressure as the hand moves towards the nipple. Occasionally the breast is raised and rolled between the hands, and again stroked towards the nipple till the whole breast is softer and milk will begin to flow away. The babe loses this milk, but can be fed from the other breast and given a bottle of weak cow's milk in between. Meanwhile, Friar's Balsam should be freely applied to the nipple, and covered over with a small pad of absorbent wool. The sores heal readily under this coating and should not be washed or otherwise interfered with.

For slight cracks when nursing, Tannic Acid in vaseline or glycerine should be applied, and these can be continued after each time of sucking.

The nipple-shield, whether of glass or silver, has a rubber teat attached to it; a little vaseline smeared on the rim enables it to be applied firmly to the breast, and a little milk or glycerine on the teat will encourage the infant to begin to suck. Flat nipples frequently bulge out well into the space covered by the shield, so that in a few days' time the babe can grasp them. The mother may at first squeeze a little milk from the breast into the shield to encourage it to suck.

INFLAMED BREASTS.

The breasts sometimes remain swollen, hard and lumpy, and are threatened with inflammation and

abscess. There may be some fever. Here, hot fomentations, gently rubbing with olive oil, and *partial* emptying of the over-distended breast by a breast-pump are the first essentials of treatment. A large dose (one ounce) of Epsom or Rochelle Salts must be given. All liquid food and water must be cut off from the dietary, which should consist of light dry food, milk puddings, eggs, fish and rice.

When the milk has been drawn off, the breast should be covered with a thick pad of wool, and very firmly bandaged up for 3—4 hours. If it again become distended, the same procedure may be repeated, and as soon as the breast is soft and less painful, the child can be allowed to suck, and so relieve the swelling.

ABSCESS OF THE BREAST.

This may result from neglect of an over-distended or inflamed breast. One or two painful tender lumps can be felt; the surface over them becomes red and the skin thinned. Usually the milk is diminished or suppressed in these cases, and the child should never be suckled from such a breast.

An ice-bag applied quite early over the painful swellings, and kept on continuously for 10—12 hours, will sometimes disperse the inflammation. Any milk should be kept from accumulating by the application of the breast-pump, but the child can suck from the other breast. In slight cases, hot 'poppy-head' fomentations, with the application of Belladonna and Glycerine under a tight bandage, will ofttimes disperse the inflammation.

Once "matter" has formed, as shown by daily fever and persistent tenderness and shooting pains through

the breast, the abscess must be lanced at once. Any delay may destroy the breast, while the sooner it is properly treated, the more chance there is of the milk returning after healing; and the mother will then be able to resume nursing from the breast.

The hardness left after an abscess gradually absorbs and disappears. There need be no anxiety in regard to nursing future children, unless the breast tissue has been destroyed by extensive abscesses which have been allowed to open and discharge themselves. The prevention of this inflammation and abscess lies largely with the nurse; the breasts must never be allowed to remain over-distended, hard, and painful, but must at once be relieved by hot fomentations, massage and bandaging, as described above.

PROCEDURE IN CASE OF CHILD'S DEATH.

If the child dies or is still-born, the same general rules of diet for the mother should be followed, and no fluids allowed. Ice may be sucked to allay thirst. A dose of Epsom Salts each morning for a few days, and a tight bandage over pads of wool worn permanently night and day, will prevent the milk from accumulating.

If the breasts are already overdistended, they can be emptied by the breast-pump and gently massaged till soft, and Belladonna and Glycerine applied under the wool and bandage.

The nipples in these cases should be plentifully dusted with powder of Boracic acid until the milk ceases to be secreted.

The subject of nursing and the care of the breasts is such an important one to both mother and child, that

no excuse is needed for devoting a whole chapter to its consideration.

Those who study the matter most deeply cannot fail to be impressed with the sad results of feeding infants with sterilized milk and artificial foods, which lower their vitality and diminish their resistant power to disease.

Would that all mothers could realize that the welfare of the coming race depends greatly on their willingness and power to nurse their own babes. They would then grudge neither time nor trouble in the effort to study the matter and fit themselves for this sacred duty.

PART IV.

CHAPTER I.

The new-born Infant—Premature Infants—The Bath—Baby's Toilette—Wardrobe—Stools—The Urine—The Skin.

THE NEW-BORN INFANT.

In past days the comfort of the new-born infant was not considered as it is now. It was exposed to the air as soon as it was severed from its mother, soaped all over, plunged into a bath, and as a result spent its first hour of life in vigorous crying, as a protest against such treatment. Though exceptionally vigorous infants might not be injured, others caught severe chills, developed jaundice and digestive troubles, and an irritable temper from such rough handling.

It has to be remembered that the temperature of the infant's late abode stood permanently at about 99° F., so that when born it has in any case to endure a sudden fall of 18 or 20 degrees, if not more.

The new method is to quickly wipe clean the eyes, face and mouth, and then wrap up the babe in warm flannels or cotton wool, and a blanket; it is then left to sleep quietly for several hours in its cot, which is warmed with hot water bottles.

In this way the infant is given time to adjust itself to new conditions of life, while its sensitive skin and nervous system are not irritated in any way. When the child wakes up, the nurse examines it carefully all over.

The *head* is sometimes elongated or deformed from pressure upon it in the passages while being born, or there may be a large soft swelling on the top of the skull. All such alterations of shape soon disappear of themselves, if care be taken to turn the child over from time to time and so keep the head free from prolonged pressure. When instruments have been used, there may be a slight paralysis of one side of the face, appearing a few days after birth, but this soon disappears of itself.

The *mouth* should be inspected to see if there is a 'tongue-tie' or a 'cleft palate,' for these will interfere with the child's power to suck and swallow. The doctor should at once be shown any such deformities.

Again the *breasts* of the new-born infant may be found to be hard and swollen, and a fluid like milk can be squeezed out of them. They should not be handled, but given a gentle rubbing with olive oil, and a boracic lotion 'dressing,' or poultice, may be applied to them for 24 hours.

A child is sometimes born without any opening to the rectum (Anus), or this may be found in a wrong position.

A doctor must immediately be informed of this condition.

PREMATURE INFANTS.

It is not always easy to determine whether a child is premature or not, for a weakly child born at full term may be no more developed than a strong infant, born a month or so too early.

Instead of being born at the end of 40 weeks or 280 days, a living child may be born at the 28th week, and

survive. When born very prematurely, at the end of seven or eight months, there will be unmistakable *signs of immaturity* present.

Thus, the skin is very thin, bright red, and transparent; the head is very large in proportion to the rest of the body, and the skull bones very thin.

The infant is usually unable to digest mother's milk, and its nervous system is very irritable and unstable.

If it has been born before the seventh month, or 28th week, there is not much hope of its remaining alive.

At the same time, there are well authenticated instances of children born at the 25th week who lived to reach maturity, so that one need not despair of saving any premature child which makes good efforts at breathing when born.

In the *management* of such infants, three points are important:—

1. Keep in an even warmth night and day.
2. Handle as little as possible.
3. Feed frequently in very small amounts.

Directly the premature child is born, it must be well wrapped round in warm cotton wool, and covered with a light warm blanket. Until the navel cord ceases to pulsate, it should not be tied off, but when the child has been separated, it is quickly rubbed over with some olive oil under the blanket, wrapped in cotton wool again, and put into a basket with two hot water bottles. The ordinary '*incubator*', is too complicated for ordinary use. But an impromptu one can easily be arranged by means of two tin bath tubs. The smaller of these should be thoroughly lined with cotton wool to act as the cradle, and should fit into the second larger tub. A lamp is

kept always burning under the outer tub, between which and the smaller one, a space of air about 6 inches deep is left all round. The whole is covered over by a blanket. The thermometer in the inner tub should be kept permanently at 100° F.

The *feeding* must be begun at once, for such premature infants have no reserve strength, and cannot afford to lose weight the first day or two, as the normal baby does. During the first 24 hours, equal parts of warm barley water and whey, one teaspoonful every 1½ hours, should be administered.

During the second 24 hours, 10 drops of white of egg may be beaten up with the whey and barley water, and continued during the third day, unless the mother has milk in the breasts. In that case the mother's milk should be drawn off, diluted to half strength with distilled water, and 2 teaspoonfuls of this mixture given every 2 hours. If there is no mother's milk, 5 drops of fresh cream may be added to each teaspoonful of whey and barley water from the third day onwards, when 2 teaspoonfuls may be given every 2 hours. Twice a day only the child may be very gently raised off its cotton wool bed, cleaned, and rubbed all over with olive oil quickly under the coverings.

In this way both the heat and fat so badly required by the premature infant can partly be supplied, as the thin skin rapidly absorbs the oil.

When the child shows signs of being able to suck, it may be put to the breast every 4 hours, but must be fed in between with the 2 teaspoonfuls of whey, barley water and cream.

Sudden collapse and death is very common, and should be carefully watched for in these premature babes.

If at any time the infant suddenly turns blue from one of these attacks, and ceases to breathe, it must promptly be put into a warm bath at 105° F., without being unwrapped from the wool.

After 5 to 10 minutes it is removed, rubbed with warm olive oil, and wrapped up in hot cotton wool.

To avoid handling the sensitive premature infant, a soft pillow padded with wool, is put into a strong flannel pillow case, which has a pocket sewn on to the lower two-thirds of its front. The babe, wrapped in cotton wool and flannel, is first of all popped into this pocket, and thus is held firmly and comfortably when he has to be moved from his warm cradle to the mother's bed or elsewhere. Tapes sewn into the sides of the pillow enable it to be tied firmly round the body of the child, if necessary.

THE BATH.

The first bath should be given to the child after its sleep. The nurse sits in front of a fire with the infant on her lap covered with a blanket.

A piece of absorbent wool is dipped into a pot of olive oil, which has been put to warm at the fire. The oil is freely applied to the head and then to the whole body of the child, by the hand passed under the blanket if it is cold weather.

With a piece of soft rag, the oil is to be quickly wiped off, and with it comes the white cheesy substance called *Vernix Caseosa* which usually covers the skin at birth. If all this cannot be removed, there is no harm in leaving it on for a subsequent bath.

More oil is freely rubbed into the whole skin of the child, care being taken to thoroughly clean and oil all the creases of the limbs and body.

The babe is now ready for its little garments, but before putting on the diaper, the buttocks, and parts around the anus, should be smeared with Vinolia cream or Lanoline, for otherwise the skin is not easily cleansed from the sticky *meconium* or brown stools first passed by the infant.

Such a daily 'oil bath' will be found quite sufficient for an infant during the first three or four days of its life. Some people, however, prefer to supplement it by a gentle sponge with warm milk, mixed with equal parts of water. Great care should be taken not to wet the navel, as in that case it may decompose and set up inflammation.

When a *full bath* is to be given, the temperature of the room should be at least 80°F., and every precaution should be taken not to chill the child.

The water, or milk and water, used should show a temperature of 100°F.

The nurse wears an apron of flannel or of rough towelling, and takes the child, wrapped in another soft towel in her lap. After the oiling, she may lower the child, wrapped in its towel, into the bath, and rub it all over with one hand, while supporting its head with the other.

White of egg instead of soap may be rubbed over the child before lowering it into the bath, but this is unnecessary if milk is used.

After washing off the egg, the child is lifted on to the lap face downwards and covered with a warm towel, with which it is gently dried by dabbing, not rubbing, its skin.

A pure dusting powder—bought in an English shop—can then be applied with a powder puff to the whole body.

The "Violet powders" sold by Native firms have been found to be heavily adulterated with Arsenic and other injurious matters. A reliable dusting powder can be made at home, by mixing one part each of Zinc Oxide, Boracic Acid and Starch powders. This is specially useful in the hot weather, as a preventive of 'prickly-heat.'

It is wise to approach a full bath of water and soap only gradually. During the first week or two, the oil and milk baths will produce a comfort and restfulness of the babe, which is expressed by unbroken sleep except when roused for its meals.

Next, a sponge bath on the knee may be given, and lastly, the full bath. Delicate infants should never be given the full bath, but should have each limb in turn quickly washed in milk and water, rubbed with olive oil, and covered up so that it is not exposed to the air.

The regular baths of a baby should never be given immediately after a feed, nor should he be taken out-of-doors at once. A meal and long sleep should always follow the exertion of the bath.

In India, the water is laden with mineral matters, which are responsible for the dry skin, irritation and rashes of infants washed in them. To soften the water a table-spoonful of oatmeal should be tied in a muslin bag, boiling water poured over it, and left to stand on it for an hour. Afer squeezing the bag, the oatmeal water is added to the bath water.

BABY'S TOILETTE.

It is well for a young mother to thoroughly learn the routine of bathing and dressing the new-born babe, for although a trained nurse is usually in attendance, yet

emergencies may arise at any time, and instructions may have to be given to some inexperienced attendant.

First, the *cord* will need to be dried and powdered with dry Boracic Acid. If there is any bleeding, a fresh ligature may be tied round over the first one, very tightly. The cord is then wrapped in a piece of sterilized gauze or boiled rag, packed round with a little absorbent wool, and turned upwards. Then a flannel binder, 6 inches wide and 16 inches long, is to be applied round the abdomen fairly tightly to hold the cord in place; it should be fastened on one side by firm stitching.

Care must be taken not to let the cord get wet when bathing the child, as it is apt in that case to decompose and smell. If kept quite dry, and not exposed to the air, it will shrivel up and fall off about the sixth or eighth day.

A napkin of Turkish towelling is then pinned on, care being taken not to have too great a thickness brought up between the legs, as then the hips of the babe are thrown outwards in an unnatural position. If, on the other hand, the napkin is pinned too tightly round the hips, these are thrown forwards, and "knock-knee" results.

During the first week, the only other *garments* required for the babe are a little flannel shirt, and the "swaddling blanket."

This is a square of double blanket about 1¼ yards long. The infant is laid diagonally across it, with the head near one corner. Fold first one side round the child and then the opposite corner, and turn upwards the lowest corner to fasten it to the rest with a safety pin.

Such a simple garment, made of thin or thick flannel according to the season, saves the child from much handling while its nerves are intensely sensitive, and at the same time easily permits the mother's hand to be inserted and feel the body of the child without disturbing it.

THE WARDROBE.

Later, for the baby's *wardrobe*, light weight woollen fabrics are to be preferred to the heavier flannels, and to the fashionable embroidered cotton garments, which overheat the skin and impede the free movements of the limbs. Many infants in India suffer from skin eruptions and feverishness, due to heavy unsuitable clothing, made with thick gathers round the neck, and tight strongs and waist bands which impede the expansion of the lungs.

LIST OF BABY CLOTHING.

6 Flannel binders;
8 Woollen shirts;
6 Flannel petticoats;
6 Day gowns of flannel or silk;
6 Night gowns;
4 Dozen napkins of towelling;
8 Flannel napkins;
3 Wool jackets;
2 Dozen woollen socks;
2 Knitted bonnets.

The shirts should have long sleeves and buttons, by which the flannel petticoats can be fastened on to them. This arrangement is more satisfactory than the 'Long flannel,' as there are no string fastenings or

bands round the waist, and if soiled the petticoat is easily detached from the 'shirt.'

The day gowns may be of pretty coloured Vyella or of fine silk, with long sleeves, and should not be longer than 30 inches. The ordinary multitudinous "long clothes" of the baby bind its legs down and prevent free movement.

The night-garments may also be of wool, or in great heat, soft lawn night gowns may be worn, over the sleeveless shirt of wool.

In cold weather, flannel squares may be worn over the napkins of soft Turkish towelling, which should be 18 inches square, doubled across.

After the first two or three weeks, the napkins need rarely be soiled at all, if, from the beginning, the babe is trained by holding it out after each meal, and every morning and evening it is encouraged to have regular movements of the bowels by gentle rubbing of the abdomen, or even by introducing a tiny pyramid of soap into the bowel until the habit has been formed.

STOOLS.

The first motions of a new-born infant consist of a dark green sticky substance called *meconium*, which should begin to pass away within 12 hours of birth.

If much of this has come away during delivery, there will be delay; premature children also are often two or three days before they begin to pass a motion.

There may be three or four such stools in each 24 hours, during the first three days. From the fourth day the stools begin to change to a bright yellow, and their consistency should be that of thin mustard, without lumps and without odour.

The meconium is of value to the child as nourishment; so the nurse should never give castor oil within the first three days to clear it away, as thereby an artificial hunger is created which has to be satisfied by giving the infant milk, or other unsuitable food. If no meconium comes away at the end of 24 hours, the case of a thermometer, or a tiny pencil of soap may be introduced into the anus, when a copious flow follows.

The crying of a healthy babe may often be satisfied by a drink of water, for which purpose a bottle of distilled water may be kept, and a teaspoonful or two given to the child when it cries. The drier the climate, the more water it will need. Plenty of water to drink is a preventive of infantile constipation, and is also of great importance in diarrhœa, to support the strength of the child.

There are some children whose bowels respond to every variation in the temperature around them. Thus, loose green stools appear with any sudden change from dry to wet, from hot to cold, and *vice versâ*, and in India the mother cannot afford to ignore such signs as she can in a healthier climate.

Mucus in small quantity on the outside of constipated motions need not be considered a serious matter, unlike the small stool mixed up with much mucus which is an early sign of dysentery.

Motions that are clay-coloured, offensive or watery, are a sign of serious bowel disorder.

THE URINE.

A babe is usually born with its bladder full of urine, which is passed for the first time within a few hours of its birth.

Every male child should be carefully examined to see that the passage for the urine is free, and if the 'foreskin' is found tight, it should be circumcised.

The best time for this trifling operation is in the second or third week.

If the bladder remains distended and no urine is passed in the first 24 hours, the infant will show signs of discomfort and pain. A warm sponge or flannel wrung out in hot water may be held over the bladder and abdomen; or in obstinate cases the infant may be given a hot bath, when it often empties the bladder into the water and gains relief. It may be necessary if this fails, to call for a doctor to pass the Catheter and draw off the urine.

THE SKIN.

Infants are born with a very fine soft skin, often of a deep red colour. This colouration soon fades to pink, and then perhaps to yellow, when the child is obviously 'jaundiced.'

Others are a pale pink from the first, and have the skin covered with fine soft hairs which soon drop off.

The premature infant has a very red skin. In a healthy babe there may be tiny mottled patches on the eyelids and elsewhere, but these gradually disappear of themselves. Tiny red patches of broken blood vessels under the skin are also of little moment; if large and prominent (*nævus*) they can be removed by operation later on.

Many new-born infants have a very dry wrinkled skin, harsh to the touch, and showing that they are suffering from bad nutrition. Water baths must, on no account, be given to such babies, but the skin can be cleaned with a little milk, and plenty of olive oil rubbed in daily, till the skin looks healthy and natural, soft, mottled, and

elastic to the feel when picked up between the finger and thumb.

Crusts on the head, consisting of dried up secretion of the unhealthy skin glands, persist in forming on some infants' heads. A good soaking with olive oil, and rubbing Borax and Glycerine well into the scalp twice daily will prevent them from forming.

In unhealthy dirty surroundings, larger crusts may form on the infant's head, owing to infection of the skin with unhealthy germs. Poultices of linseed should be applied for 24 hours, and then olive oil is dabbed freely all over the head, and the crusts carefully removed with the aid of some wool soaked in the oil. Sulphur ointment spread upon a 'Cap' of fine clean rag may then be bandaged on, and changed each day.

If when born, an infant is thin and emaciated, its skin of an earthy greyish colour, and with scarlet patches upon its palms and the soles of the feet, the condition is a serious one, and it should be at once shown to a doctor. Sometimes the red patches, together with sores around the mouth and anus of the infant, only make their appearance some days or weeks after birth. Still they are no less dangerous, and medical treatment is needed if the child is to be saved.

CHAPTER II.

THE FEEDING OF INFANTS.

Breast-feeding—Wetnursing—Weaning.

BREAST FEEDING.

It has already been pointed out that during the first two days of life the infant needs very little nourishment; that little is supplied by the first milk in the mother's breasts (colostrum) in the best form for digestion and in exact proportion to its needs.

Nothing else but food, or plain boiled water, should ever be put into the baby's mouth and stomach; neither sugary compounds, oils, spices, drugs, nor any other messes, should ever be administered without the doctor's orders.

Put to the breast three times in the first 24 hours and four times in the second 24 hours, the baby receives each time a few drops of concentrated nourishment which has the property of clearing out the bowels, whilst the child's vigorous sucking draws out the nipples.

During the night, the baby should sleep from 10 P. M. till 5 A. M., if from the very first it is trained to do so, and not put to the breasts, such training, if troublesome at first, will save the mother much trouble later.

If he wakes and frets, a teaspoonful of warm distilled water and a clean napkin, or a change in his position, will send him off again to sleep.

The sooner a babe gets into regular habits of feeding, the better, but every child does not need just the same amount of food. Thus, a vigorous infant will take a full

meal, and then need a longer interval than a feeble infant, who can only digest a small feed at one time.

Most babies, however, take kindly to the rule of two hourly feeds during the day. The first feed should come at 5 A. M., and the last at 11 P. M., two feeds being missed during the night. A feeble infant will need one or two meals in the middle of the night during its first month.

After six weeks, the interval between the feeds may be increased to two and half hours, while at three months old, the babe may begin to be fed every three hours.

At four months, most children are satisfied with five meals a day, and they should sleep for eight hours at night.

From the fifth month onwards, four meals a day ought to be sufficient for a healthy babe.

If a nursling seems satisfied with his feed, lasting from 15 to 20 minutes, does not get hungry too soon after it, does not fret or cry when at the breast, and has normal motions, it shows that the quality and quantity of the breast milk is satisfactory.

After a meal, the child should be put away in its cot for a long sleep, but too often it is fondled, played with, and then rocked to sleep, with the result that the meal fails to digest, and sets up irritation of the stomach.

The mother will save her babe from much suffering if she will refrain from giving it the breast irregularly, between meals, or whenever it cries.

Its cry is probably from 'wind' and indigestion, and the more irregularly the meals are given, the worse its pain and indigestion becomes, till vomiting and diarrhœa

result. Even adults would soon have good cause for misery and lamentation, if they were continually eating a fresh meal before the last was half digested!

Some infants seem to have great difficulty in settling down to digest food at first, and will go on crying without any obvious cause. In such cases absolute regularity and great patience will always succeed in establishing good digestion in the end.

When the babe vomits up the milk soon after drinking, it may be that the milk contains excess of fat.

A table-spoonful of distilled water, or of lime water, may, in such cases, be given the infant just before each feed, to dilute the milk from the breasts.

The stale milk over from the last feed, and which is found in the ducts nearest the nipple, may also incite vomiting. It should be drawn off by the breast pump, to the amount of about 2 teaspoonfuls, before letting the child suck.

Menstruation.—If a nursing mother gets a return of her periods, the milk may disagree with the infant. Instead of abandoning nursing altogether she may try feeding with plain cow's milk and water just during the time the menstruation lasts, returning to the nursing directly it is over. In general, she will have to keep quiet in the house while the period lasts, but she need not give up nursing even then, unless the milk obviously disagrees.

Statistics plainly prove that children who have been even partially suckled, will live and develop better than those who have been entirely hand-fed.

Hence, even the most delicate mothers should make an effort to partially nurse their babes up till three or four

months old, supplementing the breast with alternate bottles, if necessary.

In any case, a nursing mother will find that she must live a quiet home life for four or five months, and no games, dancing or violent exercise of any kind can be indulged in, if the mother wishes to have plenty of rich milk to nourish her child during its first year of life.

The mania for exercise and exertion of all kinds, is, no doubt, one great reason why so few women are able to nurse with satisfaction to the child and themselves beyond the first 4 months.

To sit down to nurse a babe when tired, overheated, or excited, is the way to ensure a cross, feverish, fretful child; for what the mother is, will be exactly reflected in the delicate nerves and constitution of her little one. In fact, the amount and richness of the mother's milk will be exactly in inverse proportion to the amount of exertion, bodily and mental, that she takes, and one of the best methods of "bringing back the milk" when it is falling off is for the mother to go to bed for a few days, and so avoid all exertion, worries, and tempers which exhaust her system.

Again, faulty diet often affects the milk, and the revision of the mother's food, will soon be found to improve both the quality and quantity of the milk, which is failing to satisfy the hungry babe. Malt Extract, and plenty of eggs, cheese, fish, and milk, will increase the secretion of milk in the breasts.

The only perfect food for infants is mother's milk, and no other preparation, whether it be called 'humanized milk' or by any other name, can really take the place of what nature has provided for the infant.

For the mother's milk does not conform at all times to one invariable standard, but, on the contrary, it varies greatly with the mother's diet and with the growth of the babe.

So each mother has at all times milk for her babe the composition of which meets its needs, and it gets a variety in diet, which is an aid to digestion even in adults. What wonder then if the child suffers when a mother deliberately refuses to give it what nature has prepared with such infinite care, to suit its particular needs and constitution ?

Even when artificial feeding appears to suit a child, and it gets enormously fat and heavy on it, the bad results frequently appear in the 2nd or 3rd year.

The child then begins to lose flesh, or rather the layer of fat which has represented flesh, and is finally reduced to a thin pale fretful child, with a capricious appetite, and no resistant power to disease.

Let no mother, therefore, decide for herself that she is incapable of nursing her own child, nor should she rely upon the advice of the monthly nurse. Too often, in order to please her mistress, or to save herself the trouble of teaching a young mother the difficult science and art of nursing, the nurse will say that the milk is disagreeing with the infant, and persuade the mother to give up all attempts at nursing. The only competent person to decide this important matter is the experienced doctor, who knows the evil results that will follow both to mother and child. A wise adviser will in all cases go carefully into the special circumstances, and try to modify any conditions of life that may stand in the way of the mother nursing the child.

WET NURSING.

A *Wet nurse* is easily to be obtained in India, and, in spite of any drawbacks, it is found that most children will thrive on foster-mother's milk far better than on cow's milk or any other food. It is necessary, however, to select the nurse with great care. Her child should be healthy, free from sores, and about the same age, or very little older, than the foster-babe.

Her breast should be large, firm, and distended with milk, which flows from them on slight pressure. A little of it set to stand in a cup, should give a good thick cream rising to the surface of the milk. The nurse's skin should be free from all sores and eruptions, while her mouth should be looked into, to see that the teeth are good, and the tongue and gums clean.

If engaged, a daily bath and change to clean clothes must be insisted on, and she must be kept under supervision even during her meal times.

Plenty of milk, fruit, and vegetables, must be provided by the mistress, but otherwise the nurse may eat all the ordinary healthy food that she is accustomed to.

WEANING.

In India an European can rarely nurse her babe after 9 months old, owing to the mental and physical strain to which the mothers are subjected. The Indian woman is more favourably placed in this matter. She takes little exercise, and her secluded life free from all pressure, enables her to nurse satisfactorily up till 12 or 14 months with benefit both to herself and the child, if she does not foolishly exceed this limit and nurse on too long.

It is a mistake to lay down any rule for the *time* of weaning, as this depends on various considerations.

A child should not be weaned when suffering, or during the hot weather season. As the teeth push through in groups, with intervals between the eruptions, care should be taken to wean the babe during one of these resting intervals. The weaning should be done gradually; from one month old, a bottle of very weak milk and water should be given the babe regularly once a day, unless it disagrees. Thus the baby is accustomed to drinking from the teat of a bottle.

At seven months the mother's breast milk may be supplemented if deficient by two or three bottles a day of plain cow's milk, or milk containing a tiny proportion of one of the malted (starchless) foods. In this way the infant may be gradually weaned; if he refuses all foods except the breast, it is best to leave him hungry until he accepts the new diet. A well-trained infant will not give so much trouble as one who is accustomed to be rocked off to sleep, picked up when he cries, and generally encouraged in the fussy egoism so natural to young children. A mother must cease nursing the moment she finds herself pregnant.

CHAPTER III.

Artificial feeding—How to administer the feed—Cream—Whole-milk—Peptonized Milk—Condensed Milk—Egg Diets.

ARTIFICIAL FEEDING.

This is the day of bottle-fed babies, to the sorrow of the little ones, and the loss to the mother of much joy and comfort that she might have.

It is a time too when quackery everywhere is rampant, and so we see all kinds of Patent Foods vaunted as superior to "Nature's food for Infants." Some of these foods are quite unfit for the purpose, and if used habitually cause actual disease, and interfere with growth and nutrition.

Others are only useful as temporary foods, in special circumstances, to meet urgent needs of the infant.

Cow's milk, though by no means a perfect food for babes, may yet be considered, on the whole, the best substitute for human milk when one is necessary.

Unfortunately, it is a most difficult thing to obtain really pure milk from the cow, for in the process of passing from the cow into the milking can, and from the milking can to the baby, the milk has many opportunities of becoming infected with the germs that abound in impure air, and which rapidly turn it sour and make it a source of danger to the child.

By the 'Walker-Gordon' method such precautions are taken, that it is possible to ensure 'whole' cow's milk being procured for a child free from germs; but this process requires trained people to carry it out, and in India is a practical impossibility.

To prevent germs from developing in the milk, it is necessary to boil or 'sterilize' it, and in doing this, the

milk loses some valuable elements without which a a child may not thrive on it, and may even develop signs of scurvy, or "Scurvy-Rickets."

Other objections to cow's milk are, that it contains in proportion less sugar than human milk, and that the 'casein,' or curd which will separate out of milk from the addition of an acid, is too large and too much for the infant to digest.

Again, the curd of breast milk is very fine and soft, whereas this curd of cow's milk is thick, heavy, and solid, so difficult to break up in the child's stomach that it may escape digestion altogether, and remain to irritate the stomach and bowels.

One more important difference in the two milks is, that the cow's milk is 'acid,' while human milk is the opposite, or 'alkaline.'

All these points of difference can to some extent be corrected, and it is necessary to do so if cow's milk is to agree with the child.

1. *Sterilization* will destroy any germs that have fallen into the milk, and will prevent it going sour. Without any loss of time, the fresh milk may be at once brought to the boil, and then set on one side in a scalded jug, standing in water, and covered over with a damp cloth to keep off dust.

Or a bottle containing the milk is placed in a covered vessel of water, which is kept at the boil for 40 minutes. Various kinds of good sterilizers for this method are sold by the chemists, by which each feed is sterilized in its own bottle, apart from the others, and can be administered to the child directly from the bottles.

2. *Diluting* the milk with 2 parts of water or other diluents, will reduce the amount of casein that forms the

curd, and so we make the mixture in this respect to resemble human milk.

3. To break up the large hard curds, the most useful substances are barley water, lime water, gelatine jelly, and the addition of citrate of soda, two grains to each ounce of the feed. Barley water contains a tiny amount of starch, but if made weak, it seems to be the best possible diluter of cow's milk from the first month onwards.

4. The proportion of sugar and fat (or cream) in the milk having been reduced by diluting it, these must be added in the right proportions, to bring the feed up to the standard of mother's milk. For this purpose, 10 grains of sugar of milk may be added to each ounce of the feed, and half to one teaspoonful of cream to the whole feed.

5. To neutralise the acidity of cow's milk, lime water, bicarbonate of soda, 1 grain to each ounce, or best of all citrate of soda, 2 grains to each ounce, are the most useful. Lime water is constipating, and hence may be given where the infant has a tendency to lax bowels.

The citrate of soda is useful from various points of view. Besides breaking up the hard curd of cow's milk, it has been found that its addition to boiled or sterilized milk, prevents the scurvy which is one of the dangers of artificial feeding in India, where milk has usually to be boiled.

The same rules of *regularity* and *punctuality* in feeding with the bottle are as necessary as in breast feeding, and one to two ounces of food every two hours for the first month or 6 weeks will satisfy most infants.

The first feed should be given at 5 in the morning, and one or two feeds in the night may be omitted from the very first week.

During the 1st week.—Whey and cream with water are better than cow's milk. Two teaspoons of whey are mixed with four of hot water and one of cream. Add sugar of milk 15 grains, and give ten feeds, one every 2 hours from 5 A.M.

Or, if milk has to be given then mix 2 teaspoons of milk to 5 of hot water, and ½ a teaspoonful of cream. Milk sugar as before.

2nd to the 4th week.—One tablespoonful of milk to two of barley water; ½ a teaspoonful of cream, sugar of milk, 15 grains. Ten feeds in the 24 hours.

During the second month.—Two tablespoonfuls of milk to two of barley water; one teaspoonful of cream, and sugar of milk, 30 grains. Feed every 2½ hours.

During 3rd month.—Four tablespoonfuls milk to four of water or barley water; one teaspoonful and-a-half of cream and one of milk sugar. Feed every 3 hours.

During the 4th month.—Five tablespoonfuls of milk to four of barley water; two teaspoonfuls of cream and one of milk sugar. One feed every 3½ hours in the day only.

During 5th and 6th months.—Six tablespoonfuls of milk to three of barley water, two teaspoonfuls of cream, and one of milk sugar. One feed every four hours of the day.

During 7th month.—Eight tablespoonfuls of milk and four of barley water; two teaspoonfuls of cream and one or two of sugar. One teaspoonful of 'Mellin's Food' may be added to the bottle, two or three times a day. One feed four or five times a day.

During the 8th and 9th months.—Twelve tablespoonfuls of milk to 4 of barley water; with 3 teaspoonfuls of cream, and two or three of sugar.

One feed four times a day.—After the 7th month, 'Allenbury's Foods' Nos. "1" and "2," or 'Mellin's Food,' may be used to thicken two or three of the bottles each day, as these contain no starch.

At 10 *months* old the child may have one meal a day of chicken broth, in addition to two of thickened food.

At 12 ***months*** old, one egg beaten up in the milk, or very lightly boiled, and a 'Mellin's Food' biscuit to suck once a day, and light milk puddings may be given. 'Chapman's flour,' or 'Robinson's groat flour' may now be used to thicken the pure milk two or three times a day.

At 18 *months* old, mashed potatoes with gravy, and bread and butter, may be added to the dietary.

The above amounts are those which usually suffice for an infant at the various ages, but there is much difference in the amount of food infants require; the more vigorous one will digest a larger quantity at a time, and be able to go longer between the feeds.

So long as the infant gains weight steadily, sleeps quietly, and has good well-digested motions, the food is agreeing with it. If an increase in the strength or amount of the food at any time is followed by vomiting, loss of weight, and green or curdy motions, it shows the need of giving less food, or more diluted feeds.

SIGNS THAT A CHILD'S FOOD IS UNSUITABLE.

1. The babe gets hungry too soon after a feed.	The milk is poor, with too large a proportion of water to other ingredients.

2. Passes milk almost unchanged after each feed.	Too large feeds are being given.
3. Gain in weight is less than normal.	Too little sugar and milk in feeds.
4. Green stools, loose with colic.	Too much sugar in feeds.
5. Vomiting, frequent green stools, acidity and "scalded buttocks."	Too much fats and cream in the food.
6. Flatulence, constipation. Dry hard stools.	Too little cream in the feeds.
7. Constipation, with colic and curdy stools.	Too much milk (casein) in proportion to the cream and sugar.

If any of these signs of indigestion are present, the feed must be modified accordingly, and if there is anything wrong with the stools, 2 grains of *citrate of soda* may be always added to each ounce of the feeds before trying other measures.

For the curds passed in the motions *lime water* is useful; one teaspoonful to each feed up to 3 months and afterwards an extra teaspoonful for each month up to 7 months.

Too much lime water used constantly may set up irritation and diarrhœa.

HOW TO ADMINISTER THE FEED.

It is often more convenient to prepare each morning the 5 feeds needed for the day and sterilize the whole either in one vessel, or in a set of 5 sterilizing bottles.

For the babe at one month old, three ounces of fresh milk are added to seven ounces of boiled water. To this 3 teaspoons of fresh cream (off milk that has stood for 8 hours) and a ½ ounce of sugar of milk are added, and gently stirred into the mixture. The whole is sterilized

by bringing it quickly to the boil, and 2 to 3 ounces are given to the child according to its age.

Each feed must be warmed by standing it in a vessel of water at 99° F., or as warm as is pleasant to the finger.

The bottle used should be boat-shaped, without a long neck, rubber tubing, or angles that cannot be cleaned.

The rubber nipple should have no hole. The mother can make the hole herself by a heated darning needle, according to the size required. Thus, if baby is apt to suck too fast, she makes a small opening, while if he cannot take his meal in 20 minutes, and gets tired or worried over it, she will make a larger hole in the teat.

A babe should never be put away in his crib to feed himself with the bottle, but the mother herself should hold him in her arms, just in the natural position he would take if a-nursing, and so doing, she will compensate for the unnaturalness of what she is giving him, and supply the warmth and atmosphere he needs.

The bottle should be so tilted that the nipple is full of milk even before the child sucks at it, and it can be kept warm by a flannel jacket made to fit loosely round it.

After the 5th month, a child can soon be taught to drink from a cup instead of the bottle, a great advantage in India, as it is far easier to ensure a cup being perfectly clean.

To clean the bottles after using and there should always be two in use; they are first rinsed with cold water and immediately afterwards scalded with boiling water, care being taken to get off all pieces of milk that may cling to the glass by shaking up salt or dry rice in the bottle. Twice a day, morning and evening

the whole bottle together with the rubber teat should be boiled in water containing a teaspoonful of "washing soda," or "Scrubb's Ammonia."

After a feed, the rubber teat must be turned inside out, cleaned, soaked in boiling water and salt, and then put to soak in Boracic lotion till wanted again.

It is a good thing also to keep one of the bottles always ready, clean, and soaking in a basin of boiled water, to prevent dust and germs from setting on it.

A child should never be fed on *Patent foods* containing starch, for these cannot be digested under 9 or 10 months old, and fat is also deficient in them. 'Allenbury's No. 1 and 2,' 'Mellin's Food,' and 'Malted milk' contain no starch, and can be used for slightly thickening the milk feeds from the 6th month if necessary.

Although most infants will apparently thrive on the method of feeding just described, there are others who do not seem able to digest cow's milk modified in this way. Other methods of feeding them must be tried, such as cream, diluted with whey or barley water, whole milk, and other preparations.

CREAM.

Pure cream is milk containing a very large proportion of fat.

It must be skimmed from fresh unboiled milk that has stood 6 to 8 hours, and when diluted with 3 parts of boiled water, or 6 parts of whey, it will then have to be sterilized by bringing it up to the boil for a minute or two.

In the preparation of whey (see Part I) the curd and fats are entirely removed from the milk, and

the whey left behind, containing albumen, is nourishing and rapidly absorbed from the infant's stomach.

If cream and milk sugar are added, a valuable and easily digested food results, on which the infant can be fed for some weeks with advantage.

WHOLE MILK.

Plain "whole milk" undiluted and unboiled, is sometimes found to suit even very young infants better than diluted milk.

But in this case the cow, the milker's hands, and all the vessels used, have to be most carefully sterilized ("Walker-Gordon" method)—a thing difficult to carry out in India.

The infant will need only ½ the amount of plain milk to that usually given in each feed.

PEPTONISED MILK.

This is needed only to tide an infant over an illness, or after severe colic and vomiting, showing a weak digestion. This predigested milk cannot curdle, and is rapidly absorbed, but it should not be continued too long, or the child's digestion will remain weak.

As it has been already diluted, no water is required, but sugar of milk and possibly a little cream may be added to each feed, which should be the same in amount as when milk is given.

CONDENSED MILK.

This is also only of use as a temporary measure, where other pure milk cannot be obtained.

The sweetened form is to be diluted seven times, and one teaspoonful of cream added to every 3 ounces of the mixture.

Unsweetened condensed milk is the best. It should be diluted only with four times its own quantity of water, and one teaspoonful of milk sugar and of cream added to each 3 ounces of feed.

Savory and Moore sell an excellent Peptonised Condensed Milk, which is a good temporary food for premature and weakly infants.

Like all other 'Patent' foods, however, the condensed milks eventually cause signs of rickets and scurvy in the infants who are fed for more than a few weeks on them.

EGG DIETS.

Egg diets have been most successfully tried recently, where the difficulty of obtaining pure untainted fresh milk was great.

There is no doubt that these might well be used as a supplement to cow's milk, though many infants are fed for months exclusively upon egg-emulsion.

During the first two days after birth, the raw white of a large fresh hen's egg is beaten up and water up to 8 ounces added. One drachm (teaspoonful) of sugar is added, and the mixture stirred up and strained through muslin.

One ounce of this is warmed by standing in a basin of water at 110° F., and adminstered to the infant from a bottle every 1½ hours.

After the 3rd day, 5 drops of the yolk and 5 drops of Cod Liver oil are added to each feed, and the amount given should be just that of milk feeds, and at the same

intervals, according to the age of the child. In cold weather, 5 drops of raw meat juice can be added to some of the feeds for older babies.

It has been found that this method of feeding never results in the scurvy and rickets which boiled milk and other foods induce.

Instead of plain water, barley jelly, gelatine jelly, (a teaspoonful of each) or barley water may be used to dilute the milk for young infants. Later on, weak oatmeal or rice water are useful. All of these contain a slight amount of starch, except gelatine, and yet some children digest their food with less irritaton when emulsified by the addition of these substances.

The white of an egg ("egg albumin") is also very digestible and valuable as an addition to the milk feeds, especially where a child is not gaining weight.

CHAPTER IV.

THE DEVELOPMENT OF INFANTS.

Position when sleeping—The abdomen—Weight and size of Child—The Head—The Brain—Teething—Speech—Routine.

A mother will need to make a close study of the laws which regulate the development of the child from birth onwards, if she would guide the little one entrusted to her care safely through all the dangers of life's path. Such knowledge lies at the foundation of any wise training, whether physical or other, and such

training should begin from the moment the child is born.

POSITION WHEN SLEEPING.

The position in which a new-born healthy babe lies while asleep is characteristic. He lies on his back with the arms bent at the elbow and the hands raised to the level of the head. The fingers are loosely bent, and the thumb lies outside the fingers naturally. If, however, a child is seen to have the thumbs tightly clenched within the fist, it is a sign that it is inclined to convulsions, or otherwise ill.

THE ABDOMEN.

The abdomen of the young infant is round and bulging, owing to the thinness of its muscular walls and a large liver to the right side. If flattened or depressed, this is a sign that the babe is not thriving on its food, or is suffering from diarrhœa or some wasting disease.

The stomach is very small at birth, and only capable of holding about seven teaspoonfuls. But it very rapidly enlarges day by day, so that by the end of one month it is nearly twice as large, and at the end of the second month three times as large. There is little increase in the third, fourth and fifth months.

Vomiting occurs very easily in the young infant, and is often merely a sign that too much food has been taken, the overdistended stomach getting rid in this way of the excess of milk.

WEIGHT AND SIZE OF CHILD.

A full-term child at birth weighs from 6 to 8 pounds (3—4 seers), the males being usually heavier than female children.

In the first few days there is sure to be loss of weight up to 6 or 8 ounces. But this is soon regained when the mother's milk secretion becomes established. Premature infants have to be carefuly saved from this loss of weight by feeding them from the very first, and weakly infants need this care also.

The average gain in weight of a healthy infant should be ¾ to 1 ounce per day, or 4—6 ounces per week up to the 5th month. A mother must not be surprised, however, to find that a uniform daily or weekly progress is not the rule. All through nature, growth takes place by leaps and bounds, more quickly in some seasons than others. It is so all through child life; and thus in the young babe a period of rapid increase of weight may be followed by one of resting and quiescence, when slower growth is noted.

By the beginning of the 6th month a baby should have doubled his weight at birth, and thereafter he should gain about 1lb. a month up to the end of his first year, and a little over 1lb. a month during his second year.

The *length* of a new-born child is from 18 to 20 inches. Afterwards he gains about one inch a month during the first six months, and ½ an inch each month from the 6th till the 12th month.

THE HEAD.

The head is very large in proportion to the body of a young infant, and at birth the bones of the skull are very soft. At the top of the head is found a soft space between the bones where the brain can be seen pulsating beneath the skin. In the third month this should begin to close by formation of new bone, and before the end of the second year it should be entirely bridged over.

Any delay in the closing of this little 'window' in the skull shows that a child is unhealthy, or inclined to rickets, a disease in which the bones remain soft. The mother should eat plenty of brown whole meal bread ('Lal Ata'), eggs, meat, and vegetables, if she is giving the child the breast; or lime water may be added to the child's bottles, and bone-forming medicines prescribed for it by the doctor.

If a child is ill and the soft 'spot' becomes depressed and sunken, the mother may know that this is a sign of profound exhaustion, and that food and stimulants are urgently needed. When the spot is very full and bulging, it may be a sign of fever, or of brain disease.

SPECIAL SENSES.

The eyes of an infant are at first practically blind; a bright light moved in front of them is not noticed. After about ten days the infant begins to know the difference between light and darkness, and before two months has expired he may recognise a familiar face.

At three months old the child likes bright colours; he will move his eyes to follow objects which are moved about, and notices familiar faces.

Taste and smell are not acute for some months after birth.

Hearing is developed early, and loud noises cause a stimulus even from the very first. It is, however, impossible to say whether at this time sounds reach the infant through the ears, or in response to vibrations of the body, but certainly he early learns to distinguish the voices of those around him.

THE BRAIN.

The brain during the first month of life shows little intelligence ; no will power is exercised over the movements of the body, but sucking, yawning, crying are all actions made in response to direct stimulus—such as hunger, sleepiness, cold, and so on. Except when roused, the babe sleeps most of the day and all night ; about 20 hours out of the 24 should thus be spent at first.

Quiet is essential till the infant has acquired the right habits of sleep, but after the second month it is best to accustom the child to sleep while all the usual work and noises of the household are going on around it ; there is no need for the whole household to be going around on tip-toe because the baby is going to sleep.

In the *3rd month* a marked difference is seen both in the development of muscular power and intelligence. The infant will try to turn the head and can kick with vigour and wilfulness, and a familiar face is greeted with a smile or crow of satisfaction.

He remains awake longer in the day, but should be asleep for at least 18 hours in the 24. A young babe is very sensitive to cold, and care should be taken to provide against this cause of sleeplessness by a hot water bottle kept day and night in the cot.

Again not only the head needs support, but a small soft pillow tucked in on each side will give support to the back and abdomen as the child lies in his bed.

He should never be sleeping in his mother's bed, but always in his own cradle or pram, except at feeding times.

At the 4th month, a child is bright, and noticing, when awake, all that goes on about him. He has more will

power over his muscles and tries to raise his head off the pillow if well developed and healthy.

A babe needs now freedom from long clothing to kick and stretch his limbs, which grow by *Exercise*. The dresses before described may be shortened by tucks, but the clothing should always fulfil the two great requirements of keeping the whole body at an even warmth, and allowing perfectly free play to all movements.

From the 3rd month the infant may be daily laid on the floor, lying upon a warm blanket, and clad in the lightest of clothing and allowed to stretch and kick at his pleasure. Exercise can also be given from the very first by gentle rubbings and pattings of the whole body after the daily bath. Under 4 months old, an infant must never be wheeled out of doors in its pram nor rocked in the arms, as this jars his spine. A quiet walk carried in his mother's arms each day, and a certain amount of gentle handling and fondling, is an aid to development, but fresh air can best be got by allowing the babe to sleep in its cot or pram out of doors all day.

The child should not face the sun or lie in a cold draught. Indian servants cannot be trusted in these matters, and many an attack of fever or diarrhœa might have been avoided by the mother herself giving thought to such small details.

In the 5th month, saliva is freely secreted, a sign of preparation for teething. Baby can now turn his head freely and reach out the hands to seize objects, and also begins to be able to amuse himself, and enter into the doings of other people.

Tears are secreted from the 4th month, and the cry of the infant is worthy of study if the mother would understand her baby's needs.

First there is the loud passionate determined cry that healthy children resort to when they want to attract attention, and desire to get their own way. This cry may be called the cry of egoism, and woe to the mother who pays too much attention to it. She will soon be under a tyranny from which she cannot easily free herself, and the babe too often suffers if given his own way. The best answer is to tuck him up comfortably in his own cot and leave him to the sleep he certainly needs.

But there are other *cries* of an infant to which the mother must not turn a deaf ear. Such are the sudden sharp cry of flatulence and pain in the stomach, the low moan of real disease, and the persistent crying of the hungry discontented child. In all cases the first thing to do is to remove the cause of the crying. The painful colic can be met by a teaspoonful of Dill water, or a warm water Enema, the hunger by revising the diet, and seeing whether the quality or the quantity of milk is at fault.

It must be remembered also that babies cry for many other reasons; because they are thirsty, or cold, or too warm, because the room is stuffy and they feel the need of fresh air, because they get tired of lying long in one position, or of being played with. Again, they may cry from an irritated skin and chafing, from wet, or tight, or too heavy clothing and bedding, and because they resent being handled, jolted, and talked at, till every nerve in their delicate bodies is set on edge. The cause being removed, the cry will cease.

The *6th and 7th months* see a rapid development in strength and intelligence. The babe now tries to sit up, but should not be allowed to do so, as the spine is still too weak to support the head. In fact a babe should

never be held in the upright position without support for the head and back under 8 months old.

The saliva should be freely dribbling away, and teeth beginning to appear in the 6th and 7th month. The child may be satisfied with 4 or 5 meals a day, and can have his bottle replaced by a cup.

TEETHING.

This is rarely a time of peril to the breast-fed baby or for a well-managed infant, though the irruption of teeth is usually held responsible for many ailments. The real truth is that this is a time of transition, the appearance of the teeth showing that the infant is preparing to digest more solid food. In the digestive system changes are also taking place which are accompanied by increased irritability of the stomach and bowels, and also of the nervous system, while growth and developments are proceeding rapidly.

Then, too, at this time mothers are apt to begin to try experiments in the way of sampling various starchy "Patent" foods, before the child can possibly digest them. The babe fed at the breast till ten months old is saved from such fussiness.

As a rule, the vomiting, feverishness and convulsions so rife at this time can be easily explained by some error in diet causing indigestion, or by the condition of early rickets and scurvy induced by prolonged feeding on boiled cow's milk, or Patent foods.

The first teeth to appear, in the 6th or 7th month, are the two front teeth in the lower jaw called, 'central incisors.' After an interval of three or four weeks the upper central incisors appear.

In the 8th to 10th months the 'lateral incisors,' one on each side of the central incisors, push through the upper jaw.

There is then an interval of one to three months before the next group of teeth are cut, first the lower lateral incisors and then the four 'molars' or grinding teeth, two in each jaw, in the 12th to 14th month. The four eye teeth, or 'canines,' emerge one on each side of the incisor much later, usually between 18th and 20th months.

After a resting interval of several months, the fifth group of teeth, the 4 back molars, are cut in the 24th to 30th month.

It is evident, therefore, that at 2½ years of age a child should, if healthy, have ten teeth fully through in each jaw.,

The irruption of teeth, however, does not in all children follow the rule here described; they may be cut very irregularly, or in case of ricketty children they often begin to appear much later.

If a child has cut no teeth by the end of the 8th month, a doctor should be consulted, in order that he may detect any signs of early rickets if they are present. All the teeth should be fully through by the end of the second year.

Any change in the diet of a child should always be made after a group of teeth has come through, in a resting interval, as it is then less likely to disturb the system or irritate the digestion.

Some minor troubles frequently attend dentition in bottle-fed babies, and these should receive immediate attention. Thus, some children cut each tooth with a running at the nose and eyes, sneezing, and dry cough;

others get indigestion, small ulcers in the mouth, or skin eruptions. It is a great mistake for mothers to think that such symptoms must not be interfered with, for on the contrary it is important to keep the teething child in the best possible health. In India particularly it is never safe to neglect a slight ailment; irregularity of the bowels may end in acute diarrhœa, and slight feverishness may develop into an attack of acute malaria, ending in convulsions and death.

A small dose of rhubarb or of castor oil will clear away the 'cold,' and prevent it developing into bronchitis.

Any fever or excitement shows the need for giving the child a warm bath, and a purgative, as just described, after which he should be kept perfectly quiet in a darkened room.

If sleepless, one to two grains of bromide of potassium dissolved in a little water may be given each night, according to the age of the child.

The best way to prevent the child suffering from the ills usually ascribed to teething is to give it regular meals, with plenty of water to drink in between them; the avoidance of over-feeding, and abundance of sleep in the fresh outside air are also important.

Where a tooth is obviously causing great irritation and restlessness, before it finally pushes through the swollen gum, the question of lancing the gum may have to be considered; but this is rarely necessary, and should be done by the doctor only.

At six years of age the 20 first or 'milk' teeth should begin to disappear, and make room for the permanent teeth, which begin to push through at this time. Unfortunately the 'milk' teeth are very liable to decay and fall out before their time, the result of which is

that the jaws do not develop properly, and there is not room for the permanent teeth to come through. It is, therefore, most necessary to preserve the milk teeth and prevent decay by great care in diet, and by regular cleaning with a rag dipped in bicarbonate of soda and water, one teaspoonful of soda to one large cup of water.

With older children, the best rule is to take them regularly to be inspected by the dentist, who can painlessly stop any holes, and so prevent decay from proceeding. Pain from a bad tooth will often cause a child to bolt its food, and indigestion results.

In the *8th and 9th month* the babe learns to sit up alone, and is engaged in continually noticing all that goes on around it. If it does not do so, the mother should seek for the cause, and improve the diet if the child seems able to digest more food.

From the *10th to the 12th month* the child should begin to crawl, and will soon learn to stand upright holding on to a chair. He should not be allowed to walk alone much before the 12th month, but the slim babies fed at the breast will often walk well at that time. If at 18 months a child is not walking, a doctor should be consulted.

SPEECH.

Speech lags somewhat behind, but a few words and babbling sounds with merry laughter will show that the child is in a healthy condition. The younger babes of a family always learn to speak earlier than the eldest; in this as in other things the children are the best teachers for each other.

Delay in walking, speech, and in development along the normal lines described in this chapter, is often the result of ill-health or rickets.

If a mother notices that a child fails to 'take notice' as it should do after a month or two, but lies motionless, and is roused with difficulty, she may suspect that the brain is not properly developed.

There is much variation in the age at which children begin to talk and walk; a child may reach the age of four years without being able to say one sentence plainly, and yet may develop rapidly afterwards and make up for the lost time.

In all cases where a mother notices a child to be dull and backward, she would do well to take him to a doctor to find out the cause. A serious illness may be a great set back to a child in all ways, and indigestion, if chronic, will act in the same way, for a starved child means a starved, sluggish brain. Great patience and care are needed in dealing with backward children, who are frequently also cranky-tempered and difficult to manage. Worms in the intestine, chronic disorders of the bowels and stomach, or a sluggish liver and large spleen, are very common causes of such irritable tempers in young children, and the Indian climate may be said to be responsible for all these causes. A change to the Hills, or best of all Home, is usually the first thing needed.

Suitable food, and plenty of sleep and fresh air will in time strengthen the irritable nerves, and the companionship of other children a little older will have an excellent effect in encouraging development.

The great mistake is to give in to all the demands of such delicate children, who soon learn that they have

only to cry in order to obtain anything they want. The disobedient child cannot be well, because he is not happy, and it is never too early to begin to teach a baby the need for self-control and consideration for others. The presence of other children constantly about him is a great assistance; the solitary child in a family is in every way at a disadvantage in developing along right lines.

DAILY ROUTINE.

From the very first a mother should lay down a fixed and regular *routine* for her child, and arrange all her other duties with reference to this, the most important of all. First of all, the babe will get his early meal at 5 or 6 A. M., and then lie or sleep in its cot till it is time for the bath. The mother should give this herself, in order that once a day she may see the child undressed and note its development.

The *bath* should be given quickly to avoid chilling the body, and everything needed must be prepared and at hand ready, before undressing the child. At first the temperature of the water may be 98-99°F., but this can later on be gradually reduced to 85°F. The body of the child is first soaped all over, while lying in the mother's lap, and it is then lowered, wrapped in a thin bath towel into the warm water, in which it should not stay longer than 2 minutes.

After 3 months old, a cold wet sponge may be passed once or twice up and down the child's spine on taking it out of the bath, and the whole body should be patted, and rubbed all over with pure olive oil for 5 minutes, before putting on the clothes. The mouth must also

be swabbed out with absorbent cotton soaked in boiled water or Boracic acid lotion.

After the bath, another meal should be given, and the child then allowed to sleep out of doors, for as long as it likes. Between meals, it should always lie and sleep out of doors the whole day. Children need fresh air without stint, and frequently cry for want of it. The week old babe may be taken out of doors carried in the arms of his nurse, and from the 3rd week onwards may lie out of doors in a shaded verandah all day. The bed room must also be kept airy and sweet; no other children should sleep in it, and all dirty diapers and clothes must be removed at once from the room, and put to soak in water in the bath room.

In the evening, before the last meal, the baby needs a change of clothes, and the buttocks and face and hands can receive a wash with warm water, and a careful powdering. Combination suits of flannel for sleeping in are the most healthy, and save the child from many chills. The trouser legs should be made so long that they can be tied below the feet with a running tape. A knitted binder is also worn over the night suit to cover the abdomen.

For the cot, light wool coverings are preferable to heavy blankets and bed covers.

Many infants wake and cry from the weight of too many coverings, and also from cold, when the mother at once thinks they are hungry, and promptly gives food that they do not need. A hot water bottle best keeps up the even warmth required, and promotes sleep.

A healthy child should never be roused from sleep to give it food nor for any other reason. Weakly or premature infants do need feeding in the middle of the night,

at regular intervals, for their powers of digestion being weak they can only take a small amount at a time.

If the feeding times are kept to with perfect regularity, and if the food is suitable, there will be no need to resort to those most obnoxious things too commonly used by tired mothers, called *comforters*. Though but little things, these are capable of doing much harm to the child, who swallows germs that settle upon the rubber, as the wretched thing hangs round its neck; he also sucks air into the stomach at the same time. Besides causing 'wind' and indigestion, the sucking of a teat is found to interfere with the proper development of the jaws and mouth. Sucking the resistant nipple on the other hand aids in moulding the bones of the jaws.

A well-managed healthy babe, who has early learned that it is useless to howl for attention when none is required, will have no need of a *comforter*. When tired, fretful, and cross, he will be the better of perfect quiet in a darkened room, and needing sleep, and left unnoticed in his cot, he will not keep awake long.

The last thing at night, before the mother retires, she should raise the infant and hold it out over a chamber, in order that it may not soil the napkin. If well trained in these matters from the first, the babe soon learns what is expected of it, and saves much discomfort both to itself and its mother.

After every meal, and before going out for a walk, the same process is gone through; by the end of the first year a child should have learnt never to soil a napkin.

In this way, by fixed and regular habits, and a firm determination to persist in enforcing them, the young mother will soon have baby's life running on a smooth routine of sleeping, eating, bathing and playing, which

enables him to develop quietly and harmoniously, while saving herself from much worry, discomfort, and anxiety.

A child who is never irritated, indulged, frightened, or disappointed, will be saved from much nervous irritation, and be free to develop along the lines laid down for it, to the attainment of sturdy physical and moral growth.

CHAPTER V.

AILMENTS OF INFANCY.

Drugging—Early Signs of Disease—Bleeding from the Navel—Convulsions—Ophthalmia—Jaundice—Thrush—Skin Rashes.

THE mother who has carefully studied the development of the infant in health, as described in the last chapter, will readily observe any signs of ill-health or poor development. The foundations of good physical as well as moral health are best laid in the two first years, which are the most important in the life of the child.

It is in these years, for instance, that wrong diet induces the softening of bones called Rickets, or causes a chronic indigestion which weakens the child's constitution permanently.

Again, irregularity and lack of sufficient sleep, or want of discipline and firm management at this period, may produce a nervous w akness which lasts through life.

The organization of a child is so delicate that slight causes may disturb it more profoundly than is the case with adults, though again the child recovers its balance, and regains full health, very quickly.

In fact, one may say, that the borderland between health and disease is in children very narrow, and so illness may strike them swiftly and suddenly.

Thus, we find an infant getting high fever from indigestion or other slight causes, but the temperature falls again very rapidly with care, and the child is only a little fretful or out of sorts while it is feverish. So, too, a very slight disturbance, such as the irruption of a tooth, will interfere with the sound sleep natural to a healthy baby.

Every mother should be so well informed in the common ailments of infancy, their prevention and symptoms—that she may not neglect the beginnings of those which are serious, nor distress herself too greatly about those which are trifling and unimportant. By checking at once the slight ailments to which all infants are liable, worse results can usually be warded off.

DRUGGING.

When living in isolated places, there is a great temptation to keep a medicine shop in the house, and fly to drugging at once for every small ailment of the child. A well-managed infant, fed suitably, will very seldom need medicines; indiscriminate dosing will usually do more harm than good. Indeed, the more one learns of the action of drugs, the better one knows that they cannot safely be tampered with.

The very best means of checking disorders of children are by rest and quiet, special diet, or the leaving off all food for a time, baths and enemas.

If drugs have to be given, all 'patent' medicines and 'soothing syrups' should be avoided, and only the simplest of well-known drugs should be kept in the medicine cupboard, for use in emergencies only. A list of the most useful medicines for children is given at the end of this chapter. They should be always plainly labelled, and locked carefully away in a cupboard *directly after use*, so as to be safe from little meddling fingers.

In giving medicine to children a coloured medicine-glass is to be used, so that it will not look unpleasant, but it is a mistake to try and deceive a child into drinking it by saying it is 'nice' when it is bitter and nasty. He will not forget it, and such deceit only lays up trouble for the future.

Give a little plain sugar *before* as well as after the drug, and say it will do good and must be drunk up at once.

Small babies have not much sense of taste, and will swallow anything if it is given *slowly*. In giving them powders, dip the finger in glycerine, then on to the powder, and place it far back on the baby's tongue. Powders for older children can be covered below and above by jam or jelly (guava, red currant), or glycerine.

A feverish child should have its dry mouth moistened by a teaspoonful of distilled, or boiled water, before giving it any medicine at all, and always a drink of water, or a wash out of the mouth with a swab of wool, is very grateful to the child after it has taken medicine.

A pinch of salt in the mouth before taking cod liver oil disguises the taste; castor oil is best given shaken up with a little hot milk, and a pinch of bicarbonate of soda may be added. Extract of Malt is to be given in the same way in hot milk.

Quinine powder is taken easily if mixed with pure glycerine or honey.

Medicines should never be mixed and prepared in front of a child; it is best to bring the draught ready poured out in the glass, and let it be drunk down without delay.

EARLY SIGNS OF DISEASE.

The mother usually knows by instinct when her little one is out of health,—though if asked, she may not be able to say why she holds such an opinion. Yet there are certain slight points indicating the approach of disease which a mother may not notice, unless she has been taught about them and is on the watch for them.

If these warning signs are missed, the infant may be in a condition of danger before the mother has realised that it is even ill.

Some signs of disease have been already pointed out; the alterations in the stools passed by the baby suffering from indigestion, the distended, or flattened abdomen, the depressed fontanelle (the opening in the front of the skull), are all very important as showing ill-health in the young child.

The *skin* instead of feeling cool, soft and moist, is dry, hot, harsh, and inelastic; the mouth also will be dry, and the tongue red, or else furred.

The *position* in which the child lies should also tell much.

If in pain from indigestion, it will be on the back or side, and suddenly draw up the knees, accompanying the movement with a cry of pain, at the same time drawing the lips apart till the gums or teeth are shown. After the spasm has passed off, the babe relaxes its limbs, and lies quiet till the colic returns.

There is more serious disease when the child lies on its back, with the knees drawn rigidly upon the abdomen.

Threatened convulsions are shown by a head rigidly drawn back, and stiffness of one arm or leg, while the child catches the breath and rolls the eyes just before the fit.

Pain in the head is early shown by a contracted brow, which is unnatural in a child except as a momentary thing.

The *chest diseases* are early indicated by three or four signs. There will be an increased rapidity of breathing—from 20 to 40 or 50 in the minute—the chest walls and ribs moving much more than they do in the healthy infant. The nostrils too move quickly and forcibly, and are often drawn upwards. The hand laid gently on the chest may feel the phlegm, or the secretion of early bronchitis, moving with each inspiration.

If a child has caught cold and becomes hoarse, or has a rough, loud cough, the mother should beware of *croup*, which often follows a common cold. Again, a sudden, loud, 'brassy' cough beginning during sleep, or at any time in the day, and repeated at short intervals, will often end also in the child being unable

to breathe properly, and it may be too late to save it when this form of croup is at last recognised by the mother. The moment that the single, ringing, repeated cough is heard, a doctor should be summoned and treatment should begin.

The *sleep* will often be restless, and broken by startings, grinding of the teeth, and sudden awakenings, when the child will scream with fright.

These signs are common both in indigestion, early brain disease, and the various fevers, and must not be neglected. In any disease, a child will often refuse to be put to sleep in its cot at all.

A watchful mother will not omit to notice other little signs of ill-health, such as lack of appetite and good spirits, listlessness in playing with toys, the infolding of the thumb into the palm of the hand, the loss of desire to crawl or stand, the frequent raising of the little hands up to the infant's head, showing pain or discomfort there, and so on.

Again, she may note the little one has irritation of the vulva, or corresponding parts in the boy,—which leads to rubbing them, and this may lay the foundation of a bad habit that ruins the whole life. The cause of this may be a chafing of the skin by want of care in bathing with hard water, or in not applying the napkin properly. 'Pin worms' in the rectum will also cause the same irritation, and should be treated without loss of time.

Does the task of careful child-study and management here set forth seem too difficult for any young mother? Let her remember that in training the young infant she will be learning many lessons herself; that each lesson so learnt strengthens her for the high duties

of future motherhood, and "A nation rises no higher than its mothers."

BLEEDING FROM THE NAVEL.

Unless every precaution is taken to keep the navel and cord clean and dry from the first, an unhealthy condition may be set up, and as the cord separates—on about the fifth or sixth day--severe bleeding may take place.

Plenty of powdered boracic acid should instantly be dusted on, and pressure kept up by a big pad of wool bandaged on very tightly.

When the navel is found, after separation of the cord, to be red and inflamed, it is often due to neglect and the infection of germs. It is to be washed with perchloride of mercury lotion, and dusted with the boracic acid powder—after which it must be quite covered up by a 'dressing' of boiled gauze and absorbent wool. This treatment can be repeated twice a day, and a small dose of castor oil may also be given.

After healing, the navel may yield a little, and protrude forwards. A large flat pad of wool dusted with zinc powder, and a tight binder over it, must be constantly worn, and gradually, as the child grows stronger, this condition will cure itself.

Hæmorrhage from other parts (the nose, vagina or bowel) may occasionally occur in tiny infants.

If slight, such bleeding need cause no anxiety; sore nipples of the mother will sometimes cause the vomit of the infant to contain streaks of blood.

When, however, a healthy babe suddenly vomits blood on the third or fourth day of life, passing blood at the same time from the bowels, a very serious

condition exists, and the doctor should instantly be summoned. Meanwhile the babe must be kept quite still in its cot, and given no food; a warm bath may be administered if it seems collapsed, cold and clammy.

CONVULSIONS.

A child may get convulsive fits even before it is a day old, but usually such fits are merely due to pressure on the head during birth; they will soon pass off by themselves, if perfect quiet is ensured, and the baby's bowels relieved by enemas.

Fits which commence later on are usually due to indigestion.

In many infants the stomach and bowels are very sensitive, and the contact of food excites at once vomiting and griping, until these organs have learnt to perform perfectly their complicated functions.

The baby catches its breath, becomes pale and dusky, then blue in colour, while the eyes roll upwards showing the whites. The fit has now commenced.

The hands are tightly clenched with the thumb *inside the fingers*; twitching of the hands and face, and then of the other muscles comes on, and the breathing becomes difficult. As the attack passes off, the baby falls at once into a sound sleep as if exhausted.

Besides irritation of the stomach, high fever, worms, or the eruption of a tooth, may excite a fit in some children who inherit a sensitive nervous system.

The 'ricketty' child is specially liable to get convulsions; in fact, all other causes are secondary to this one. It is, in fact, the *bottle-fed babies who chiefly get convulsions*, and one of the first points is to revise the diet of any child who appears inclined to convulsions.

A wet nurse should be obtained, but if this is quite impossible, then the food must be simply milk, very much diluted with barley water, or lime water, according to the age; or one of the special diets mentioned under artificial feeding may be tried.

The bowels should be kept freely open by enemas, if necessary.

During the *fit*, give a bath of hot water at 105°F., containing a tablespoonful of Scrubbs' ammonia, or of mustard, mixed with it.

While in the bath, give an enema of warm water to remove any irritating contents of the bowels. On removing from the bath, pop the child into bed wrapped in a blanket, and put cold wet 'cloths' to the head.

Often there will be no further fit, when once the cause of the irritation has been removed.

If the fits continue, and there is no doctor at hand to prescribe, give one grain of bromide of potassium dissolved in a little glycerine and water every six hours, or two grains for the child who is in his second year. This dose may be repeated once a day until all sign of convulsions cease.

In India, convulsions are sometimes due to 'heat-stroke.' The high temperature is here the exciting cause, and a *cold bath* must be given instantly, instead of a hot one. The infant may be kept up to its neck in the cold water for eight or ten minutes, cold water being poured over his head.

The effect of this remedy is really marvellous; the fever goes down at once, and consciousness returns.

One or two grains of quinine may be given at once, and the infant will fall into a refreshing slumber; but should the fever come on again, no time must be lost in

wrapping the child in a cold wet sheet and keeping it in this "wet pack" as long as it has fever.

In such emergencies as these, loss of time often means loss of life, and a mother may have to face such a calamity quite alone and unaided, where doctors are few and at a distance.

Severe convulsions occasionally leave slight paralysis behind, but with proper medical care the weakness of the limbs disappears in a few weeks, and the child may grow up strong and straight.

OPHTHALMIA.

Inflammation of the eyes may come on within a day or two of birth, or at any time if the delicate membranes lining the infant's eyelids are exposed to chill, or to infection of any kind.

In the slight form, a sticky secretion gums the lids together, and the eye shows a little redness. This is soon cured by protecting the eye from glare, and washing it over several times a day with warm boracic lotion—two grains in each ounce of boiled water. One drop of pure castor oil should be dropped daily into each eye after washing, to prevent the lids sticking together.

When the infection has been severe, especially if the child is living in unhealthy surroundings, a dangerous form of ophthalmia may be set up. One eye only is sometimes affected, the lids and whole eye becoming very red and swollen. A thick discharge is poured out which may become pent up under the lids, and do great harm to the eye, unless it is opened constantly to let it out.

The babe should be kept lying on the side which is affected, in order not to infect the other eye.

Every hour at least, the bad eye should be opened, and a stream of warm boracic lotion from a jug allowed to flow freely over it.

Once a day, drop into the eye a few drops of *silver nitrate solution*, eight grains to the ounce. This should not be used without a doctor's orders if advice is obtainable, but time is often of great importance if the eye is to be saved, and no other medicine is half so effectual in stopping the course of this disease.

Fresh air is most necessary in the treatment of this complaint, and the child should lie out of doors all day in a verandah shaded from the light—with the eyes bandaged up. Other children in the house must be kept quite away from the little sufferer, or the disease may spread to them. The mother or nurse must carefully wash her hands and soak them in perchloride of mercury lotion every time after touching the bad eyes, while all wool, or bandages that come in contact with them must be burnt without delay, and the bedsheet and pillow cases boiled and disinfected.

JAUNDICE.

Another complaint from which an infant may suffer within a few days of birth is jaundice. The skin becomes yellow and the infant is so drowsy that it can with difficulty be roused to take the breast. One of the causes of such a jaundice is the chilling of the surface of the new-born babe by a full bath and much exposure, directly it is born.

The only treatment necessary is a small dose of castor oil, or better still, half a grain of compound rhubarb powder.

The jaundice will soon pass off as the infant's digestion strengthens to its work.

Jaundice coming on later in the child's life may be of more serious import, and needs to be treated by a doctor without delay.

THRUSH.

This is a very rare complaint in breast-fed infants whose mouths are kept clean.

Small white specks or ulcers are seen on the tongue and roof of the mouth, which becomes so sore that the babe may not care to suck. Dirty feeding bottles, and 'comforters' usually are responsible for this disease, which in unhealthy babes may spread down all through the bowels.

It may also spread to other children by contact, so that every care must be taken to disinfect feeding cups, or anything else that is used by the babe.

Before and after every time of feeding, the mouth must be swabbed out with wool soaked in boracic acid lotion, and then glycerine and borax freely applied on the raw surfaces with a soft brush. For severe or prolonged cases the best remedy is an application of 'Glyco-thymoline'—one part mixed with two of boiled water—painted on in place of the glycerine borax.

SKIN RASHES.

Even the youngest babies are very liable to eruptions on the skin, which is very sensitive and thin in early life. *Red gum* and other sweat rashes appear within a few days of birth, and look like tiny red pimples or vesicles on the neck, body and limbs. They are a sign

that the digestion is disturbed, and that the child is overheated

The only treatment is a small dose of castor oil, or of rhubarb powder, and olive oil may be freely rubbed into the whole skin, before dusting on zinc and boracic powder in equal parts very freely.

A slight change in diet is often useful in any skin eruption of infants who are bottle-fed; it has been already explained that the breast-fed baby alone obtains the variety in composition of the milk, which is so essential to its proper development. One or other of the artificial diets, cream and whey, or Mellin's food, and raw meat juice (according to the age of child) should be substituted for the plain milk, or other food habitually given in the bottles.

Prickly heat is the cause of much misery to children during the moist heat of the plains, and is largely due to overclothing and the anæmia to which English children are subject. The Indian child, with his bare skin kept well oiled, very rarely suffers from this form of eruption.

It appears suddenly in the form of a profuse rash of pimples surrounded by red tender skin, looking like measles. These burn and itch like 'nettle-rash' does, and the child soon gets worn out and sleepless with the irritation.

A change in the diet, the greater dilution of the milk with barley water or whey, very scanty light clothing, and anointing the whole body daily with olive oil or cocoanut oil after the bath, will prevent this tiresome complaint in many children.

When suffering from prickly heat, the child should have baths of oatmeal water instead of plain water

twice daily, and after the oiling, plenty of oxide of zinc powder is to be freely dusted on the skin.

A change to the hills is often necessary, for the little one may get fever and exhaustion if the prickly heat does not yield to treatment.

Eczema in all forms is a very common complaint of even young infants, sometimes owing to inherited tendencies, or from want of care in bathing, and allowing the baby's skin to get chafed or irritated.

Small water blisters appear first, which break open, and their discharge may form crusts on the skin ; this becomes irritated, and the child's scratching increases the inflammation. The digestion is usually at fault, but in older children eczema may be a sign of weakness and poverty of blood.

In the *treatment* of this complaint the diet will first need attention ; all starchy foods and sugar must be stopped.

Whey and cream, raw meat juice and egg albumen, are the best diet for small babies.

The body must not be washed with soap and water. Oatmeal water, or better still, an egg beaten up in warm water, should be used in place of any soap.

For slight cases, olive oil freely dabbed on with absorbent wool, and zinc ointment applied after the daily bath, and two or three times a day, will effect a cure.

If there is great irritation, a doctor should be consulted, and meanwhile the greatest relief is given by washing the part with lead lotion several times a day.

A grain each of rhubarb powder and bicarbonate of soda daily, cools the blood and clears the bowels.

The child's hands should be bandaged up to prevent him from scratching the parts.

Chafing at the bends of the joint in delicate children is another form of eczema, or it may be due to carelessness in drying and powdering the skin.

Oatmeal water should be used for the bath, and glycerine and boracic then applied freely, and gently rubbed on.

Red sore buttocks are often caused by acidity and flatulence, with green motions and diarrhœa. If the skin round the anus gets sore, no water should be used for washing, but plenty of olive oil can be used for cleaning it and protecting the part.

The best application is oxide of zinc and castor oil, made into a paste and smeared on to the parts constantly, to protect the skin.

But any application will be useless while the acid motions continue.

A variety in diet must be tried, and a small dose of castor oil given internally, followed up by one grain each of rhubarb and soda every morning. The baby's wet napkins must be removed at once, and washed before reapplying them.

Boils are common at all ages in India, but especially trouble children and even young infants who are kept in the plains during the rainy season of the year. The food should be carefully revised, and raw meat juice or raw eggs added to the dietary, if there is any poverty of blood.

It is almost impossible to stop a boil from developing when once it has started as an inflammation around a hair gland. Poultices of cold boracic lotion kept constantly applied for 24 hours, or painting the inflamed part with 'collodion,' may in rare cases stop the course of the boil, and they do relieve pain. Internally,

a dose of castor oil, followed by a tonic medicine, such as Fowler's solution of arsenic (one drop twice a day after food) will do more than local applications in these cases.

If the boils ripen, they should be opened with a clean needle, or may need to be lanced, and the core removed.

Nettle-rash is another eruption connected with indigestion. It consists of raised patches, white or red in colour and very irritable, which break out over the whole body quite suddenly.

It may cause great alarm to the mother, but is easily cured by a dose of compound rhubarb powder and "liquid magnesia," while a tepid bath containing oatmeal water, or a tablespoonful of bicarbonate of soda, promptly relieves the itching. The whole rash should disappear within two days from its first appearance.

Ringworm may be caught from older children, as it is very infectious; it tends to destroy the hair in patches.

First there will be an irritable round patch on the head or body, red in colour and scaly, which will spread to other parts of the body unless treated immediately. If on the scalp, the hair must be shaved closely, so that fresh patches may at once become visible as they appear.

Each patch should be instantly painted over with tincture of iodine twice a day, the moment it appears.

If this does not cure, and the patches spread, the glycerine of carbolic acid, weakened by diluting with an equal part of pure glycerine, is an excellent application.

A very large eruption of ringworm on the body in neglected cases will be best treated by the oleate of mercury, rubbed thoroughly in with a piece of lint each night, and the part can be constantly washed with perchloride of mercury lotion.

Baldness may result from a severe attack of ringworm, or may be merely a sign of debility in the child as in the adult.

To promote the growth of hair, the following lotion is very useful :—

Olive oil ...	... one ounce.
Tincture cantharidis	... half an ounce.
Spirits of rosemary	... one ounce.
Eau de cologne	... half an ounce.
Tincture capsici	... half an ounce.

This lotion to be rubbed into the scalp at nights, and also glycerine of borax two or three times during the day.

CHAPTER VI.

AILMENTS OF INFANCY.—*Continued.*

Digestive Disorders—Flatulence and Colic—Vomiting—Constipation —Green Diarrhœa—Acute Diarrhœa—Chronic Diarrhœa.

THESE are so commonly the result of errors in diet and of chill, that it can truly be said that they are largely preventible. Even a baby nursed by his mother does not escape from mismanagement, for who does not know of mothers who have worn themselves out by

too frequent nursing, and brought their children to much the same condition? Some mothers think that they must go on feeding the child whenever it wakes or when it cries, when it sleeps and when it frets, when it has 'wind' or colic; and if really ill, they feed it all the more.

If patent foods and cow's milk are being used, these are often given too strong, too often, or in too large quantity, or the foods are of the wrong kind.

Over-feeding therefore is a great danger, and often leads to most serious results. The infant's digestive organs can only deal with a certain amount of food, and any surplus remains to ferment, and irritate the stomach and bowels.

In bottle-fed babies the hard curd of the cow's milk is especially irritating, and too often germs introduced with it attack the bowels, and cause acute diarrhœa or dysentery, the whole curd coming gradually away. Hence, it has been truly said of these cases that "a child may be starved with its stomach full," if the food is of the wrong quality or indigestible.

Here it is often necessary to stop all milk food for a few days, until the offending curd has been got rid of, and then the feeding must be started on fresh and wiser lines, with perfect regularity *both of time and amount.*

The best temporary diet to give is equal parts of whey and barley water, beginning with a tablespoonful of each, or a teaspoonful of raw meat juice in two tablespoonfuls of barley water; egg albumen, or pure "egg diet" may also be tried.

This danger, of over-feeding infants, must not be allowed to overshadow the great danger of running to the opposite extreme.

Under-feeding is quite common among mothers who belong to the number of those faddists who advocate the under-feeding of older people, the "no breakfasts," "no meat," "all cheese" cranks.

An underfed baby suffers acutely, is constantly fretful, peevish, listless, sucking its little fingers when not actually crying, and it does not gain the proper amount in weight. The lips and mouth are usually dry, or even cracked, and the skin of the body shrivelled and dry, having lost its supple, velvety, elastic feel.

Such a child sucks ravenously at the bottle or the breast, but is soon hungry and crying again.

If the thermometer is put into the rectum, the temperature is found to be a little raised above normal, and the child is always restless at nights, and sleeps badly.

In this condition of the child there is something wrong with the quality or quantity of the milk or other food.

If breast-fed, the mother's diet should be enriched, and she should give up all exercise, or best of all *stay in bed for a few days.*

It cannot be too often repeated that the greatest reason why mother's milk is apt to fail and disperse far too soon, is the amount of exercise, and of going out to night entertainments, that modern mothers indulge in, when they should be living a very quiet life indeed, vegetating mentally and physically, in order that their chief strength may be devoted to nourishing the child at the breast.

In India the mother takes even more exercise than she would do at home, and her breast milk often needs to be supplemented by two or three bottles a day after the first three months. Or, one ounce of barley water

and cream, or whey and cream, in equal amounts, can well be given just before two breast feeds.

Bottle-fed babies will often improve greatly if the milk is strengthened by the addition of white of eggs, whey, or a tiny proportion of Mellin's Food after the first three months. Such an occasional change in diet is very useful for tiding them over a slight digestive upset, and all young children thrive best on a varied diet.

A pinch of salt helps the food to assimilate, and may well be added to each bottle for delicate children.

FLATULENCE AND COLIC.

If curd or undigested food remains in the stomach, it will ferment, and much gas is given off which distends the bowels. The abdomen becomes blown out, and the pain causes the knees of the infant to be drawn up in order to relax the muscles. The child gives sudden sharp cries of pain, and becomes blue about the lips, or in bad cases may get a convulsion.

A slight case is soon relieved by a warm water enema, gently rubbing the abdomen with oil, and a dose of dill water by the mouth.

In breast-fed babies, the flatulence is sometimes due to the mother's milk being poor in quality, so that the infant's stomach remains empty, and fills up with gas. Here there probably is need for the mother's milk to be supplemented by two or three bottles a day, of whey and cream, or other food. The mother must rest and take a richer diet.

Again, the lower half of the body and the abdomen requires more protection from *chills* than the head and upper part of the body. Wet napkins left on will

cause colic by chilling the abdomen, and besides wearing the woollen 'binder,' a babe who is subject to colic should wear a pair of long drawers, tied up below the feet by a running tape.

The severe flatulence and colic due to wrong feeding may often be entirely prevented, by regularity in the amount and time of the feeds, by lessening the sugar in each feed, and by altering the diet and varying it from time to time.

Half to one teaspoonful of best olive oil ('salad oil') may also be given daily to a baby who is liable to these attacks.

During the attack of colic, the first thing is to get rid of any irritating food in the stomach by giving half to one teaspoonful of castor oil emulsion, repeated every two hours up to three doses. A small enema of warm water should also be given at once, and the baby's pain may be relieved by laying it face downwards over a hot water bottle, and by rubbing the abdomen with oil.

No milk should be given for at least 24 hours; barley water and white of egg, or whey and barley water, two tablespoonfuls every three or four hours, will be sufficient food while the stomach is irritable.

Later, one teaspoonful of 'fluid magnesia' may be given each morning, and 'citrate of soda' or bicarbonate of soda, two grains to each ounce of the bottle-feeds, are sure preventives of the formation of curd in the milk which is the cause of the colic.

VOMITING.

Owing to the infant's stomach being at first rather like an upright tube, vomiting takes place very much

more easily than in adults, and with little straining or distress.

Some infants always bring up a little excess of the milk after each feed; less food should be then given, and the child not allowed to stay so long at the breast.

Dandling and playing with an infant just after a meal also induces vomiting of this kind, or the child drinks too rapidly as well as too much.

The mother can easily regulate the flow through the nipples by her fingers, or the hole in the teat of the bottle may be made very small for 'greedy' babies who drink too fast.

Excess of fat and cream in the mother's milk causes vomiting in the first few weeks. It is a good thing in these cases to draw off a teaspoonful or two of milk from the nipples with a breast pump, and also give the babe a teaspoonful of lime water or of plain distilled water, just before putting him to the breast.

In flatulence and colic, the whole feed may be suddenly shot up soon after drinking. The babe did not need the meal, and nature takes this excellent method of disposing of the useless milk.

The flatulence should be treated, and no cow's milk given. If at the breast, the milk may be diluted as above described, and only small feeds given for 24 hours.

In severe vomiting of sour curds, the stomach must have eight hours of perfect rest; only plain distilled water, or barley water made *very* weak by dilution, can be given to assuage the thirst. A teaspoonful of castor oil must at once be administered, and then two grains of bicarbonate of soda dissolved in a teaspoonful

of dill water every two hours, will be found comforting to the stomach.

It is very necessary for a mother to watch carefully and check any tendency to vomiting in her baby, lest it become a *habit*. If the child does not appear to suffer at all in general health, but puts on weight and flesh each month, the vomiting which occurs only after food may be regarded as a 'safety-valve,' and she need not get anxious.

Chronic vomiting is very serious and usually means that the child's food is unsuitable. The child wastes and becomes feeble and exhausted, while one food after another is tried for a few days, and given up in turn. A doctor should be consulted in every case of vomiting in infants, in order that such a condition may be prevented.

A wet nurse is the most important item in the treatment, and must be obtained as soon as possible. Her milk may have to be drawn off with the breast pump at first, and diluted with distilled water (half and half) before administering it to the babe with a spoon.

In these cases of severe or chronic vomiting the child must never be given food from a bottle, but should be fed very slowly, drop by drop, from a spoon.

Till the wet nurse is obtained some one food should be chosen, such as 'white wine whey,' or albumen water, raw meat juice well diluted, or peptonised milk, and one to two teaspoonfuls at a time only given to the child.

The mother should remember that one teaspoonful *retained* is better than three or four taken, but never absorbed, and that much patience and hopeful perseverance will win their reward. The mother should

eschew all medicines for the child, except when ordered by the doctor, but can rub the whole child all over with olive oil twice a day.

CONSTIPATION.

Even breast-fed babies get very constipated from time to time unless watched, but bottle-fed babes suffer the most, and premature infants are very troublesome in this respect.

The commonest cause is the *lack of fat* in the food given, and hence such a tendency can usually be combatted by the addition of cream, or of olive oil, to the dietary.

All drugs should be avoided, at least in the first years of childhood. If the olive oil is not sufficient, then an occasional small enema, either of water 1—2 ounces, or of glycerine one teaspoonful, will succeed best.

Meanwhile the diet can be revised, and a little *variety* tried.

A pinch of Mellin's food in two or three bottles each day, or a teaspoonful of pure malt extract (Kepler's), are also useful when the stools are hard and lumpy, and covered with mucus.

Barley water in place of lime water should be used for diluting the bottles, and the infant should be given plenty of water to drink, particularly in the dry or hot parts of India. The babe may be given each morning one to two teaspoonfuls of orange juice, well diluted with barley water. Often by these means the trouble is overcome without having to resort to a single dose of medicine.

If any is needed to clear away a great accumulation, the safest to use is the 'fluid magnesia,' one teaspoonful, repeated if necessary.

If the liver is not acting, as a result of chill or lack of fat in the diet, the stools are hard and white in colour, or pasty and greyish. The compound rhubarb powder, 2 or 3 grains, followed by a daily dose of 'fluid magnesia,' will soon put the matter right, but also less milk food is required for a day or two. One or two of the bottles may be omitted, and others replaced by whey and barley water, or albumen water.

In India, a baby's constipation should never be neglected, for dysentery frequently follows on a chronic constipation. The mother should see that each day shows a thorough evacuation of the bowels.

For older children, plenty of fruit and vegetables, and chewing their meals very slowly, are the best preventives of chronic constipation. They too should not be drugged, but by varying the diet, giving them oatmeal porridge two or three times a week, and the "stewed figs in olive oil" mentioned in Part I, a free daily evacuation can be ensured.

An occasional soap or glycerine enema may also be administered.

GREEN DIARRHŒA.

Even healthy babies will occasionally pass loose green stools, but so long as these are not very frequent, and the child continues to gain weight, no anxiety need be felt, though the infant must be carefully watched.

Every change in the weather may be thus reflected in some children, especially at the changes of seasons in spring, at the beginning of the 'Rains,' or of winter.

Indigestion, colic and flatulence may also result in loose green motions, by which the offending matters, or irritating curds, are expelled from the bowel.

Dirty 'comforters' and bottle teats are perhaps the commonest causes of this form of diarrhœa in India, where rubber materials cannot possibly be kept free from germs without constant care.

Again, lumpy greenish motions, hard or pasty, are due to lack of cream and fats in the diet; even breast-fed babes will thus suffer, if the mother's milk is too poor in cream.

Slight attacks of this 'green diarrhœa' are often attributed to teething, and mothers hesitate to check it, with the old idea in their minds that "it helps the teeth to come through."

In India, however, it is never safe to neglect a diarrhœa, nor to let the habit of looseness be formed in a child.

Treatment.—At the very beginning half to one teaspoonful of 'castor oil emulsion' should be given, and the child must be kept quiet, lying in his warm cot between hot bottles.

If bottle-fed, the diet should be altered; the bottles may be given more diluted, or may need to be strengthened by the addition of half a teaspoonful of Mellin's food, or of cream to each.

If there is colic and flatulence, the addition of two grains of 'citrate of soda' will prevent curds passing in the motions, and a teaspoonful of lime water may be given before each feed.

Breast-fed babies rarely suffer from this complaint, unless the mother's milk is deficient in cream.

Want of care in washing the baby's mouth and the nipples every time he feeds, is sometimes responsible, and cleanliness in these matters, and the avoidance of "comforters" or dirty rubber rings to suck, will soon make the stools normal.

The mother should go to bed for a few days and eat a richer diet of eggs, fish, cheese and vegetables to improve her milk if it is poor.

ACUTE DIARRHŒA.

In infants this comes on very suddenly as the result of indigestion, chills, or irritating germs in the food. If not treated at once, the little one will soon become exhausted, with cold hands and feet, a sunken abdomen, and the "soft spot" on the top of the head depressed. Much vomiting and restlessness frequently accompany the passage of motions containing sour smelling curds, or offensive green or watery stools.

Now, no one can tell where this state of things will end, and the mother must lose not one moment in sending for the doctor. Too often, however, she is out of reach of skilled advice, or there will be delay in obtaining it, and she must trust to herself alone.

In any such case, one small dose of castor oil may be given, or repeated half teaspoonful doses of the castor oil emulsion every three hours.

All ordinary milk food is to be stopped, and a few teaspoonfuls of some food that can be rapidly absorbed given instead. Such foods are—whey and barley water* in equal parts, albumen and water, raw meat juice or

* The barley water for use in diarrhœa should be made by bringing the barley just to the boil, and straining off the water quickly.

chicken broth, given very diluted, *i.e.*, in the proportion of one teaspoonful to one ounce of distilled water.

In the worst cases, one teaspoonful of such food every half hour or more is all that can be retained, and sometimes only plain boiled or distilled water containing two or three drops of brandy must be given every hour.

When exhausted by several hours of purging, a hot mustard bath will often revive the infant; but the child must not be kept in longer than 5 minutes, and should then be quickly dried and wrapped up in warm flannels, with hot water bottles in his cot.

An enema of warm water may also be slowly injected into the bowel from a fountain syringe, the child lying quietly on its back. Six or eight ounces will be sufficient for an infant under six months, but older children benefit from a pint being injected.

As the diarrhœa ceases, the ordinary milk food should only be returned to very gradually, and if some looseness continues, half to one grain of Dover's powder given twice a day is very useful. Or one grain each of bismuth and of salol may be given for offensive loose stools so common in the hot weather.

On the other hand, acute diarrhœa is often followed by constipation, which can best be met by careful dieting, giving a little malt extract in the bottles three times a day, and plenty of olive oil, both internally, and rubbed on the abdomen.

CHRONIC DIARRHŒA.

In spite of every care, it happens sometimes that an attack of acute diarrhœa ends in a persistent looseness of bowels which is most difficult to cure. All food

appears to ferment and disagree, four or five green or pasty whitish stools are passed daily, and the infant shrivels up till he looks wizened and old.

The younger the babe the more serious is this condition. If a diarrhœa persists, it is sure to be due to—

(1) Unhealthy surroundings or bad air.
(2) Unsuitable diet.
(3) Something wrong with the infant himself.

Malarious and unhealthy districts or houses provide a large number of such cases.

Again, the mother may have taken endless precautions, and yet the food is found to be not well adapted to this particular infant.

Children with a tendency to rickets, and those inheriting a feeble digestion, will often suffer from this chronic form of diarrhœa. Drinking or eating too quickly, and overfeeding also, often end in colic and chronic diarrhœa.

Treatment.—Drugs and medicines are of little use, without the careful dieting and nursing which only a mother can give.

A wet nurse should be obtained if possible, or the child put on to the same light well-diluted foods as prescribed for acute diarrhœa.

All milk and 'patent' foods must be entirely given up, and only very small quantities of the food chosen may be given, regularly at two hourly intervals, night and day.

For a baby three months old, three to four teaspoonfuls may be given very slowly; at six or eight months old, one and a half to two tablespoonfuls every two hours.

The baby's diet should not be changed every few days; it is not only useless but harmful to fly from one food to another; in such cases patience and perseverance will tell in the end. If the stools become thicker, and less watery and light in colour and the child begins to put on weight, a very little peptonised milk may be added to any of the digestible foods, and given two to four times a day.

Lime water seems sometimes to increase a chronic diarrhœa, so must not be given.

The only drug which benefits the child is 'castor oil emulsion,' half to one teaspoonful three times a day.

A thorough change of climate is a necessity in bad cases, and a daily warm water enema given gently, is always useful, and must not be omitted.

CHAPTER VII.

THE HYGIENE OF CHILDHOOD.

Nursery Routine—Diet—Drinks—Sleep and Rest—Fresh Air and Light—Exercise—Clothing—The Bowels—The Bladder—The Permanent Teeth—School Hygiene—Meals—Sleep—Mental Training.

NURSERY ROUTINE.

In considering the management of childhood when infancy is past, we shall be learning how to build on the foundations which have already been laid, for good or evil.

It is now more than ever important to make some simple rules for the daily life of the child, and keep strictly to them at all times. This cannot be done if there are constant interruptions to the usual routine, travellings to and fro, children's parties, or much coming and going in the house itself. For a child to share much in the life of the 'grown-ups' around it, involve a strain to the nervous system which cannot be gauged at the time.

Absolute regularity and punctuality in the times for meals, play, bath, bed and sleep are essential, and nothing should be allowed to interfere with the fixed routine which is found so soothing to children's nerves, and which they really like and will jealously guard.

Again, a child should never be hurried over anything. Ample time should be allowed for all that has to be done in the day; the child will have to face the bustle and 'wear and tear' of life quite soon enough. For this reason, attendance at Kindergarten or other classes should not begin too early; there is apt to be anxiety and strain for the little one, in getting him ready in time not to be late for "school."

It is well not to guard a child too carefully from injuring itself by continually repressing its natural activities, as a nervous mother is inclined to do. The child must learn sometimes to direct its own energies aright, and must 'endure hardness' if it is to reach a vigorous development of muscle, nerves and brain. The children of a large family naturally learn valuable lessons of self-control and unselfishness, which strengthen both body and mind.

On the other hand, too often the only child is indulged and shielded, and never learns to overcome

obstacles; he goes forth ill-equipped for the battle of life, a weakling of little value either to his family or the State.

DIET.

After infancy is past, the child's food should still largely consist of milk and the milk foods; the greatest care is needed when introducing any fresh element into the dietary, in case it upsets the digestion.

In India, where the appetite of children is often very poor and capricious, a strict routine should not be kept to. Indeed, there should always be plenty of variety and some surprises about a child's meals; the element of the unknown will interest the child, and help it to forget a jaded appetite.

All meals should be given as before, perfectly regularly and punctually.

Children differ much in the time they will take over a meal; some are naturally slow eaters, while others tend to bolt their food without properly chewing it. This last is a very bad habit, leading to indigestion and early decay of teeth.

On the other hand, some children will dawdle endlessly over meals if permitted to do so. A careful mother or nurse will take pains to encourage a child who bolts his food to talk, while forbidding conversation to the one who dawdles and plays fancifully with his food.

A child must never come to his meals tired out, or when only half awake after a sleep. After coming in from a walk or vigorous play, a 20 minutes' rest should be given him in a cool verandah or room before going to a meal; in all ways the child should be trained to take his meals seriously, while they are made as pleasant and attractive as possible.

The *quality* of the food put before children should be of the best, tasty, served in an appetising way, and well (but not over) cooked.

They should *never* be given 'preserved' or tinned messes, containing no one knows what remains of dead animals, sold under high sounding titles. Fresh food only is suitable for children, and that should be chosen according to its nutritive value, and its effect upon the digestion and bowels of the child.

When a child is indisposed, we should strive earnestly not to think instantly of tinned foods, though the usual course is to send out at once for half a dozen tins or pots of various sizes, and feed the unhappy little one entirely upon preserved poisons for some days! The reason for this is obvious. Very few women have made a point of studying the nutritive and other properties of various food stuffs, nor do they understand much about preparing and cooking food to the best advantage.

Least of all do they know how to prepare fresh food which is suitable for the sick child, such as clear soups, chicken and calves'-foot jellies, purées of pounded meat, a good thin custard, or milk puddings.

The meat for children's meals must be fresh, not twice cooked; it should be grilled thoroughly, roasted or gently stewed, but never fried, baked, or curried. The Lentil (Dál) is a good substitute for meat, and can be cooked in various appetizing ways, such as Dál and potato pie, the Dál being first gently stewed in good gravy or meat stock. Or the same Dál rather thick can be lightly cooked in batter.

How rarely too are milk puddings made properly for children!

No eggs should ever go into them, as these become very indigestible by long baking. Rice and other cereals need prolonged cooking in order that the starch may be thoroughly broken up and rendered digestible. The Indian cook, however, likes to save his charcoal, and has a rooted objection to any slow cooking, so that unless the mother realizes and insists upon the importance of it, good food is continually being spoilt, and the children's digestions suffer.

A good *rice pudding* needs only the rice, milk and sugar.

Enough washed rice is taken to just cover the bottom of a pie-dish, which is then filled up with fresh milk, uncreamed. After stirring in 1—2 tablespoonfuls of sugar, the pudding is slowly baked in a 'cool' oven for at least 2½ hours. For the last ten minutes a hotter oven is needed to just brown the top of the pudding.

Other cereals also, such as Scotch oatmeal, ground maize, semolina or sooji, all need thorough cooking to render them digestible and to break up the starch granules.

Wholemeal bread is most necessary for children, and can be easily prepared with crushed wheat flour (Ata), mixed with an equal quantity of 'Seconds flour.' All that is required to prepare delicious bread and scones is some 'Paisley flour' or baking powder, and a little milk.

The ordinary baker's white bread has no nourishment in it, and is frequently prepared by dirty coolies in filthy and infected surroundings.

The question of suitable vegetables and fruit for the child who is commencing to eat solid food is important.

To begin with, mealy potatoes, vegetable marrow, the white part of the cauliflower, asparagus and well cooked spinach are useful. For stewing fruits, the best are very young tender rhubarb, the pulp of baked apples, apricots and guavas.

DRINKS.

Children must not be stinted of water, especially in the dry Northern Indian atmosphere. Plenty of water drunk between meals is an excellent preventive of constipation, but there is no need for any water to be drunk *with* meals.

Lime juice, tea and coffee, aerated waters, and alcohol in any form, are most unsuitable drinks for children.

Orange juice, carefully strained, or *apple juice* are most useful and agreeable to all children. To make the apple juice, take a pound of apples cut up, and place in a bowl with half a pound of sugar; pour in 2 quarts of boiling water and allow it to stand till cool; then mash up the apples, allow all to stand for one hour more, and strain. Sick children can drink this with advantage and pleasure. Barley water may be used to dilute these—and other fruit juices for drinking. Raw fruit must rarely be given to children; plums, apricots, cherries and gooseberries are especially dangerous.

Both stewed fruit and oatmeal porridge act as laxatives for the bowels in constipation, but as they chiefly act by merely irritating them, it is not wise to use them daily for this purpose or they soon loose all effect. If much sugar is used with the fruit or porridge, flatulence and indigestion may be set up, by the fermentation of the

sugar in the stomach, and so they defeat their own ends.

Children need plenty of *fat*, yet many have a great dislike to it.

The fresh gravy that runs from a good joint of meat as it is first cut into, contains some fat, and is readily eaten with mashed potatoes or bread at dinner. Or bread may be dipped in fresh hot drippings just off the joint as it is being roasted; good bacon fat will usually be eaten with relish.

Cream may also be given, with puddings, porridge, or in cocoa.

Up to 5 or 6 years of age, meat is hardly needed; the dietary of the child should chiefly consist of milk, 'whole meal' bread, eggs lightly boiled, oatmeal and other grains, vegetables, stewed fruit (never preserved), milk puddings, Dál, fish, and good barley or mutton broths, and pea-soup.

After 5 years of age, chicken or fresh mutton may be given on alternate days, but care must be taken that the meat is of the first quality, tender, and thoroughly cooked.

At the end of the 2nd year, the meals may be fixed as follows:—

First comes *breakfast*, about 7-30 A.M., or 8 according to the season.

At this meal, the child may have bread and milk, 'sooji' or semolina, or a large cup of milk with bread and butter.

After two hours of vigorous play, a cup of milk is usually acceptable, and then comes the midday sleep.

Dinner about 1 will consist of fresh gravy with bread or potatoes, a lightly boiled egg and bread and butter,

or a milk pudding made without eggs, and plenty of milk to drink (no water).

The evening meal about 4-30 P.M. will consist of milk with rusks or biscuit food, oatmeal gruel, or bread and butter, and jam without seeds.

After the evening bath, the little one may have a cup of warm milk in bed, before settling to sleep.

In the 3rd year, vegetables and stewed fruit (as above described) may be added to the dietary, and in some few cases a doctor will order an occasional meal of carefully pounded underdone meat, or purée of chicken or fish (whiting, haddock or river fish).

The test that the child's food is suitable and is well digested, is a steady increase in weight and development month by month. Delicate children should always be weighed every four weeks or so, upon a fixed day, but this is hardly necessary in the case of strong healthy children. Indeed, the weighing machine may become a real nuisance, when the whole house is upset because Baby No. 1 has not gained weight! Babies Nos. 4, 5, 6, and 7 are usually left unweighed altogether.

SLEEP AND REST.

Children of all ages need to spend a large part of each day in sleep. We sadly stint our children in this, particularly when they begin to attend school. Yet a child who is growing and developing normally has already a heavy demand upon its resources, and school work adds to the strain very considerably. It is recognized that the infant and young child needs long hours of sleep; 14 to 16 hours out of the 24 is none too much for the child of four and five years of age.

The school boy needs very little less; twelve to fourteen hours should be the regular allowance according to age. Recent experiments made on German school children whose mental powers (of attention and retention) were tested carefully, proved that the shorter the hours of actual schooling, and the longer the hours of sleep allowed to a child, the more satisfactory were the results to the teachers.

Quite young children and infants may well sleep out of doors in the daytime in a shaded verandah, but the perambulator must not be moved about and shaken, or the sleep will be broken and unrefreshing.

Larger children of four to seven years of age sleep best if put for their midday rest in a darkened room, where there are no distractions and no toys allowed.

Children sleep more soundly when put into separate beds, and separate rooms also should be arranged for where possible. Not enough consideration is given to the evil results, both physical and moral, of crowding children together at night; they will wake fretful and overstrained, having devitalized each other, even if free ventilation of the room has ensured their not poisoning each other also.

In older children the mental terror of darkness and loneliness should never be treated lightly.

In this case, temporary companionship and a night light must always be provided, if the child is to get real mental as well as physical rest.

For children who are always nervous and naturally restless at nights, a quick sponge bath of tepid salt water at bedtime will often ensure a sound night's sleep. For such children, however, a country life and plenty of fresh air are essential, and schooling should be begun

at the last possible moment. The excitement of the Kindergarten, and of meeting with large numbers of other children, causes a very definite nervous strain on infants, which often shows itself in later childhood by various signs of nervous debility.

Bedtime should be absolutely regular; bath, the tooth brush, and a cup of warm milk or other food given in bed, will make the best ending to a day spent by the child happily in alternate play in the open air, rest, and the absorption of plenty of nourishment suit able for building up its body hour by hour.

The restfulness so essential to harmonious development of the brain and body can best be insured by a definite and regular routine, and the avoiding of all excitements.

Fear is the most exhausting thing possible to the little growing frame. One of the best ways to meet the fears of nervous children, is for the mother to be always ready to reply truthfully and thoughtfully to their questions, and they should be taught to bring every enquiry straight to her.

A wise mother will never allow her child to sleep away from home, with strange bed fellows, who may frighten and terrorize the little stranger, or teach him evil habits.

When asleep or resting, a child should be kept thoroughly warm, without requiring any heavy bed clothing, such as cotton wool coverlets (risais) or fur rugs, which do not allow free evaporation through them. Such heavy coverings relax and weaken the system.

The bed clothes should never cover the face, even on the coldest night.

A fire in the nursery to warm the air breathed by the child, and if needed, a warm bottle in the cot for delicate children who suffer from cold feet and hands, are the best means of preventing chills and chilblains. Older children, like infants, can be trained not to notice noises when asleep; and in Indian bungalows it is important that the rest of the household should not need to refrain from all noises for fear of disturbing the sleeping children. These will not easily awake, if they have spent the day in the fresh air, and have also had plenty of rest, so that they are not overtired nervously or physically.

FRESH AIR AND LIGHT.

These two priceless things are a necessity for the full development of all plants and animals, and equally so for the young growing child.

Certainly it is now fairly well recognized that children will not suffer if the nursery window is kept open day and night. But the fact that open windows, and sleeping and living always in fresh pure air actually prevents chills and 'colds,' requires to be insisted on. It is certain too that a life lived chiefly in the fresh air and sunlight is the best preventive of 'tuberculosis' (consumption), and of malaria in this country. Whether in rain or heat, the child should never be confined to a shut up house.

A real nursery is usually an unattainable luxury, but the children's sleeping room should always have a current of air sweeping through it, night and day. A shady verandah with a piece of carpet (dhurrie) on the floor instead of matting, makes an excellent play room in rainy and hot weather.

The nursery is not the place for dirty napkins or other soiled articles, which poison the air at once. Mattings on the floor are also undesirable; the best covering is oilcloth, which is now easily procurable, and can be kept absolutely free from dust by a daily wipe over with a damp cloth. The odour of "Baby" should never greet the nose as it is put inside the door of "Babies' Castle;" a peep at the little ones should be an unalloyed pleasure, and their rooms the sweetest, cleanest places in the house. The temperature of the rooms in which children chiefly live should be steadily kept up to about 65°F.

EXERCISE.

From the very beginning, a child need never be prevented from attempts at running and walking, always provided it is strong and healthy, and has the desire to run about. A ricketty child, weak in muscle and bone power, will not desire to do so. It has been wisely said that "the evils that arise from walking—and they are many—are due to *walking a child*, not to *the child walking*."

It is quite unnatural for children under seven to take walks at a steady pace to any distance. If left to themselves out of doors, they will play about, now running, now sitting, now skipping, taking just the kind of exercise which best will develop bones and muscles, without overfatigue of any one set. But the last thing a child will do, if left to itself, is to set out upon a long walk.

It is not only the distance children are often taken by their elders, but it is also "the pace that kills;" the slowest steps of the adult may hurry the little child, and overfatigue it in a very short distance.

If living in a town, the child is best conveyed on pony or carriage to some open gardens, where it can get down and play. Riding on a pony is splendid exercise, especially for delicate children.

CLOTHING.

The clothing of all children should fulfil three great requisites—

1. Comfort and freedom of movement.
2. Even warmth from the neck to the feet.
3. Cleanliness.

Comfort is ensured by having all garments as loose as possible, with no tight constricting bands anywhere, allowing free play to the lungs and limbs.

For both girls and boys in the first three years of life, the petticoat may well be replaced by loose bloomers or knickers, for wear in the nursery, and when playing and crawling. The fewer garments that are worn, the greater the ease and comfort of the child.

Thin or thick woollen fabrics are best and safest; or thin washing silk may be used for the hottest weather, provided one thin woollen combination is worn next to the skin.

The healthy state of the rest of the body partly depends upon the proper circulation of blood through the feet and legs. In cold weather warm stockings and loose shoes and boots, lined with flannel and made of the softest leather, are advisable. Sandals are quite insufficient as a protection to the feet out of doors, especially in India, where septic germs swarm upon the ground and can be easily inoculated into a scratch.

It must not be forgotten that children's feet are naturally wide at the toes, narrowing to the heel. Their

footgear should always be made to order, exactly the shape of the foot.

The second requisite, *even warmth*, is secured by having all garments made in one piece from the neck to the knee, with warm stockings below the knee. If one such warm woollen garment is worn next to the skin, it does not so much matter what form the outer garments take, so long as they are neither tight nor heavy, the worst of faults in clothing for children.

One of the commonest mistakes is to overload the chest, and wrap up the head, while the sensitive limbs are left exposed with the idea of 'hardening' the child. Uneven chilling of the surface of the body takes place, and predisposes to bronchitis.

The head needs, if anything, to be kept cool, though the latest fads of the "no hats, no boots" brigade need not be followed. The head needs protection both from the sun and from cold winds.

For girls, thick stiff "stay-bodices" into which the lower garments are buttoned are most unsuitable. They prevent evaporation, and act as 'poultices' to the part of the chest they cover. A well-fitting flannel bodice acts far better, and can be worn till the girl leaves school. Or one of the close fitting 'emancipator' bodices, or other soft substitute for stays, can be worn.

The 'backache' from which so many women suffer may be often directly traced to its right cause by finding that the muscles of the back are feeble and wasted, having been prevented from developing through years of girlhood by the use of stays, which impeded their free action. Other evil results of stays for growing girls are spinal curvature, from weakness

of the back muscles, and anæmia or poverty of blood from the lungs being compressed.

Cleanliness is essential; the young child should have a change of clothing at least every day, and in hot weather twice a day. Soiled wet clothing, if kept on, injures the skin, makes it liable to chills and eruptions, besides causing the child much discomfort. The wardrobe should, therefore, be large, and woollen garments, if worn, can be easily washed out at home, far better indeed than by the Indian washermen.

Cold water containing soap-suds should be used, and borax, one teaspoonful to each pint, should be added to soften "hard" water. The garments are soaked for two or three hours in the soap-suds, quickly rinsed out in clean rain-water or a running tap, and dried in the sun. This method leaves them soft and unshrunken, and does not wear them out.

Bed clothing for children should also be light. A woollen combination garment reaching from the neck to well below the feet, is the best garment for them to wear at night, while light porous blankets, not cotton wool "risais," should alone cover them.

THE BOWELS.

During the first year of life, the bowels should be moved three or four times a day. In the second year most children will have two stools a day, and thereafter the bowels may be opened once a day. The colour is now darker than in the infant, but the stools should not be hard, white or pasty looking; they should be light brown and soft.

The way to avoid constipation and other trouble with the bowels, is to insist on all food being thoroughly and

slowly masticated, to give the child a large variety in diet, plenty of outdoor exercise, a daily cold sponge immediately after the warm bath, and see that he attends to the bowels regularly *at the same time* each day.

THE BLADDER.

All children require to be taught the need of relieving the bladder frequently and regularly.

Between three and six years of age, urine should be passed at least every three hours in the day, and the daily routine should be arranged so as to permit this.

Weakly children may be unable to retain their water at nights. "Bed-wetting" is a tiresome habit requiring time and patient training to cure.

Every child needs to be lifted once or more in the night, and there need be no fear that after being so roused the healthy child will remain awake; he usually falls off to sleep again directly. If, in spite of this, he wets the bed, the mother must see that he does not lie on his back, and he should live all day in the open air, take simple milk food, but without much fluid in his diet, and have a daily cold shower bath of salt water and a rub down with a rough towel after his evening bath. If such simple means are ineffective, a doctor may be consulted.

Some irritation of the parts, and desire to pass water frequently, may be caused by the presence of tiny "thread worms" in the lower bowel, or in boys by the need for circumcision.

These matters should be quickly attended to, as the handling of the delicate parts will do much injury to the rest of the body, and may lay the foundation of evil habits which will last a lifetime. The best preventives

of such tendencies are a healthy outdoor life, plain light food without spices or pepper, and the daily cold shower bath.

For older children, some wholesome teaching on the use of the organs for getting rid of the waste fuel of the body should be given, and even young children can be told that rubbing and handling the parts will make them ill.

The signs that the habit has been acquired are that the child is nervous and restless at night, has a poor appetite, has dark signs under the eyes, and seems listless and disinclined to play with other children, and to take exercise

The mother will need to watch closely, and devote much time to curing such evil habits, which are often acquired quite unconsciously.

Girls when approaching puberty may suffer from a slight discharge from the external parts, which causes irritation, particularly in the hot weather. The common causes are constipation, and too much sitting over studies, and lack of vigorous exercise. A girl at puberty should not be sitting for hours upon a hard chair, bending over her books or sewing. Oatmeal water in the bath, in which she may sit for some 15 minutes, is soothing, and plenty of time should be given for sleep, for exercise, and play; the bowels must be kept freely open.

THE PERMANENT TEETH.

These begin to appear above the gum from the 7th year; they gradually replace the first teeth by the 14th year.

It is important that they should come through in their proper place, and to ensure this, a young child's mouth

should be regularly inspected by a good dentist. If the first teeth are forcibly extracted too soon, instead of being gradually pushed out by the second teeth, the jaw will contract, and the permanent teeth will come through irregularly. The first to appear should be two double teeth, behind the temporary ones at the back of the jaw; next, the two front teeth of the lower jaw, then the corresponding ones of the upper jaw, and the teeth on either side of these.

Four double teeth replace those of the first set, and then the eye-teeth appear. These often come irregularly, and if prominent, the appearance is affected; the child should be taken to a dentist at this time, to have any defects remedied before it is too late. By the 14th year there should be 28 teeth in the jaws.

If these are badly arranged, the mastication of food is interfered with; but the actual eruption of the second teeth does not affect the general system, or involve any special tendency towards disease.

The teeth should be cleaned with a soft tooth brush three times a day; tepid water containing half a teaspoonful of bicarbonate of soda is the best thing to use.

SCHOOL HYGIENE.

In the plains of India the arrangement of school hours and the regulation of the amount of study suited to each child, presents difficulties not realised elsewhere.

Experiments show that in the hot season a child's rate of growth and development may be almost at a standstill, while his appetite and energies fail, and even bright children will now find their lessons a strain. In such cases it is a mistake to press the little ones with

lessons, particularly if going to school involves the children being forcibly woken up from their most refreshing sleep in the early mornings.

For older children, especially the girls, a long morning session in school is quite sufficient during the hot weather, and "preparation" at home should be left off at this season, so as to allow a long sleep and rest at midday. A good meal should come next, and then some outdoor games till bedtime.

Under 12 years of age, four hours of school work in the cold weather and half an hour of preparation is quite sufficient; for older girls one to one and a half hours of preparation may be necessary. Parents should not forget that for many children 'the half is better than the whole' where lessons are concerned.

Nowadays most children are 'spoonfed'; a large amount of predigested nourishment is poured into their minds all day, one lesson following closely upon another, but they are given little time or opportunity for assimilating and digesting this mental food. Even if such a course caused no strain on the nervous system and brain, the undigested knowledge is quickly discarded on leaving school.

What a child really needs is plenty of leisure to grow, mentally, as physically, in the knowledge which he has gradually acquired with some effort of his own; but the hurry of modern life has been allowed to enter the school room, and instead of being taught how best to acquire knowledge for themselves, it is crammed into the children as fast as possible. Far off, indeed, is the time when children as they leave school will be of those who "love beauty, desire knowledge, need fellowship, who thirst for innocent pleasure and make demands."

MEALS.

These are too often hurried over or neglected during school sessions.

Every child needs a good breakfast of porridge or bread and milk and an egg, before the long morning of work, and to ensure this, ample time is necessary after rising. After school, most children are ready for a good dinner, but in hot weather a light lunch of milk, puddings and stewed fruit, followed by a long sleep and rest, is advisable, dinner coming rather later in the day.

Coffee and tea should never be drunk by children in the evening; they overstimulate the brain and prevent the child from getting to sleep in proper time. Cocoa or milk for supper, and plenty of brown bread and butter or jam, are suitable for school children of all ages for their last meal.

SLEEP.

Once more, at the risk of some repetition, I would emphasize the need for more sleep for school children, especially in the hot season, when all sleep at nights is apt to be broken and unsatisfactory. Recent enquiry* shows clearly that it is lack of proper sleep in childhood and youth which is responsible for the nervous exhaustion "Neurasthenia" and general debility so common in these days.

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* 'Report of Inter-Departmental Committee on Physical Deterioration.' Vol. I, p. 56.

In Indian households the children of the family are permitted to see and hear everything their elders do and say; even the mysteries of birth and death are open to their astonished eyes. The sad result is that their real childhood abruptly ends at a very early age, and there is no doubt that such premature experience of life materially shortens their days.

In many homes there is a fixed hour for the children's bedtime, but the elder ones at least are often allowed to break through it for trivial reasons, and the midday rest in summer is not insisted upon. "Six hours for work, six hours for play and meals, and 12 hours for sleep" is a good working rule for elder school children. A paper by Dr. Acland, to be found in the 'Parents' Review' for July 1905, is worth some study. It is entitled "Sleep in relation to growth, development and work."

MENTAL TRAINING.

The mother may do far more than the school teacher, in training the baby lips to the right use of words, and in purity of utterance and speech.

It has been said that "she who moulds the language of a child moulds its thoughts also," and "thought rules the world." So a mother may well teach her children truthful and pure modes of speech, by helping them to give accurate descriptions of any event or story that has interested him, and by keeping a strict watch over the subjects of conversation held in their presence.

Discussions about money, sickness, or the sufferings of others, are not suitable for children to hear, and the words heard perhaps unconsciously by the little one may return later, to trouble his mind with shadowy fears, of pain or mysterious sufferings which may afflict him too in the future. For this reason, children after infancy cannot be safely left to the sole care of a native servant for even a short time; though often devoted to their charges, they may do them infinite harm by their foolish, unsuitable talk, which too often refers to disease, demons, and other horrifying subjects.

CHAPTER VIII.

DISEASES OF CHILDHOOD.

Rickets and Scurvy—Constipation—Vomiting—Diarrhœa and Dysentery—Worms—Protrusion of the Bowel—Prominent Abdomen—Rupture—Respiratory Diseases.

WE have already studied the disorders from which young infants suffer, and how best to meet the emergencies which often arise suddenly in their case.

The common complaints of older children require the same study and consideration if the watchful mother is to guard against them.

RICKETS.

Before the child has left infancy behind it, this disease may show itself by slight signs which should on no account be passed over. It is essentially a disease of bad feeding; prolonged feeding of a child upon boiled milk alone, and on starchy 'Patent' foods, and the lack of fats in the dietary, are usually responsible for producing it.

This disease brings in its train a tendency to chronic indigestion and diarrhœa, to bronchitis, croup and convulsions, besides leading eventually to bending of the bones of the limbs.

If towards the end of the first year of its life a mother notices that the teeth of the child are late in appearing, and that the little 'window' at the top of baby's head remains widely open; if the child is restless at night, apt to throw off the bed clothes and perspire profusely about the head, she may fear lest these are early signs of rickets. Often these children are fat and healthy to look at, but during the second year of life the

plumpness—which is only a flabby fatness—wears off, and they may rapidly waste away to be mere skeletons.

Any tenderness of the limbs, or dislike to being handled when being bathed and dressed, should also awaken the mother's suspicions; such ricketty children are always late in beginning to walk, and should never be pressed to do so.

The most important thing when such symptoms are noticed is to attend to the diet of the child. Ricketty children always have troublesome digestions, and so, as soon as possible, a doctor's advice should be sought, and carefully followed.

Plenty of fresh 'whole' milk and cream, raw meat juice and eggs, and the juice of oranges or grapes are usually prescribed;—all boiled milk and 'Patent' foods must at once be given up.

Cod Liver Oil emulsion with the hypophosphites is quite the most useful tonic, and is usually well digested, or Cod Liver Oil with malt is sometimes preferred. The child must live all day in the open air, and wear wool garments from the neck to the foot.

The best preventive of rickets is to feed a child at the breast; it is only the artificially fed infant who in the great majority of cases develops signs of this disease.

SCURVY.

Signs of slight scurvy often accompany early rickets, for both are due to much the same errors of diet,—unsuitable food, boiled and condensed milk, and 'Patent' foods. In older children the lack of fresh vegetables and of variety in diet may cause an attack. A mother may well be startled by the sudden appearance of such

symptoms as swelling of the joints and limbs of the child which are too tender to move, or a general swelling and redness of the surface of the body. The gums too are found swollen and bleeding easily, or the mouth may be sore. A child if not carefully dieted in this condition will very soon lose flesh, and get pale and wasted looking.

The diet should be improved in quality; fresh (unboiled) milk, raw meat juice, eggs and fruit juice, together with mashed potatoes and any other easily digested vegetables, are the best remedies for the disease. A doctor must always be consulted if possible.

DIGESTIVE DISORDERS.

There is much greater risk of children past their infancy suffering from food disorders and severe digestive troubles in India than in temperate climates; slight ailments or errors in diet often lead to serious or even fatal results in the tropics when neglected.

Constipation.—Mothers cannot treat this condition too seriously; the cause should first of all be sought for and removed. Temporary constipation, with perhaps white "liverish" motions may be due to chill, or to the eruption of a tooth, but more commonly indigestible food (such as half-cooked porridge) is the cause. A dose of castor oil, followed by an enema of warm water is the best treatment.

Chronic constipation may be cured by great regularity in the daily habit, a cold douche to the body after the warm bath, plenty of outdoor exercise, and abundance of water to drink *between meals.*

Mothers should plan some variety in a child's food from day to day; a sudden change in the usual diet

will often set the bowels working again. Boiled milk is apt to 'bind' the bowels. Half to one teaspoonful of extract of malt in it once a day will often counteract this tendency; or a plantain may be peeled, scraped, and then mashed down with a little hot milk,—and given to the child early in the morning.

The 'Olive Oil and fig' pudding for older children is very useful; also the juice of most fruits drunk in the early morning. Apricots, pears and apples stewed should be taken from time to time.

Weakly children with sluggish livers are habitually constipated and the greatest care is needed not only in dieting them, but in keeping them from getting chilled or over-tired. Hot water fomentations to the abdomen, which can also be regularly rubbed with olive oil, are most useful in these cases. Drugging should be avoided except to the extent of giving them an occasional dose of Rhubarb or of fluid Magnesia.

A thorough change of climate—to the Sea or Hills, if not to England—is usually the best remedy for these children.

Indigestion and vomiting.—The first thing to do when a child has pain in the chest and abdomen with sickness or other signs of indigestion, is to put him into bed with a hot water bottle, apply hot fomentations if the pain is severe, and give no food at all until the doctor arrives. If there should be griping pains, a simple enema, or 6 to 8 ounces of warm water containing a tablespoonful of olive oil, may be injected into the bowel.

The vomiting of children occurs very easily, and may be only nature's method of relieving the stomach of indigestible food. Again, it usually occurs at the

beginning of an attack of fever, replacing the shivering that occurs in adults.

It is a symptom also of serious disease, and if prolonged and frequent, it may be due to disease of the brain or bowels, or show the onset of one of the infectious fevers.

In all cases the temperature should be taken, and the little patient kept perfectly quiet; a drink of warm water containing half a teaspoonful of salt, if given early, will help to wash out the stomach quickly.

Diarrhœa and dysentery require careful treatment from the moment of their onset; in older children as in infants, a slight looseness may become serious if neglected.

The child should remain in bed from the first, and have a fluid diet only;—milk, diluted half and half with boiled water or weak barley water, may be given every two hours. A dose of castor oil, and also an enema of warm water, should be given in all cases.

In severer cases, all milk food must be given up, and the child fed up on whey, white of egg in water, or other suitable substitute. The child should have plenty of water to drink, and hot bottles in its bed.

The only safe drug to give is repeated small doses of Castor Oil Emulsion. If the stools do not soon change in colour and become thick and more natural,—as well as fewer in number, the mother may be sure that the child is seriously ill. In any case, a doctor should always be summoned as early as possible, as it is impossible to tell how the diarrhœa of a child will end.

In *Chronic Diarrhœa*, or even where there is a tendency to habitual looseness of the bowels in a child,

some fault in the general management and surroundings may be looked for,—or the condition may be due to a general want of 'tone' and weakness of the system. The diet and hygiene of the child must, therefore, be now carefully regulated according to the doctor's orders. A change to England or to the seaside has usually the best result.

Worms are very common in India. There are three kinds which infest the bowels of children: first, the tiny white 'Thread' or Pinworm, the larger 'Round worm' about six to eight inches long, and the 'Tapeworm' which is several feet long. The former live only in the lower bowel, so are easily treated, but the Tapeworm (which consists of many white flat pieces jointed together to form a long ribbon) lives high up and is dislodged with difficulty.

If a delicate child is found to be restless at nights, with a tendency to scratch the anus, and pick at the nose, the presence of thread worms in the lower bowel can be suspected, and the motions must be watched. A dose of castor oil at night, followed by a 'worm powder' of Santonin in the morning, should be given *only if worms are seen.* Next, they must be washed out of the rectum by an enema containing one teaspoonful of salt dissolved in five ounces of water.

This injection should be repeated on three or four mornings.

The 'round' and 'tape' worms cause more general disturbance; some fever, sickness, colic pain in the abdomen, and attacks of diarrhœa and sleeplessness, or even convulsions. If these worms are suspected to be present, a doctor must be called in without delay.

The common sources of infection are impure water, raw vegetables off the ground, and diseased or half-cooked meat.

Protrusion of the bowel is not uncommon in a hot relaxing climate, and also in weak children. Worms in the lower bowel, and straining when passing a (constipated) motion will bring down the bowel outside the 'anus.' It will have to be oiled and then gently squeezed back again by steady pressure from the fingers.

The child must be made to pass all his motions lying down; constipation must be avoided and the buttocks can be tightly strapped together to prevent this accident occurring.

PROMINENT ABDOMEN.

A mother is sometimes startled to see her child's abdomen looking distended and prominent as he stands naked after his bath. This is common in Rickets, and where there is any enlargement of the liver and spleen, as happens sometimes after malarial fever.

It does not, however, always imply disease, for over-distension from flatulence and bad feeding may be the sole cause; or in weakly children in the plains of India, the muscular walls may fail to keep the bowels back as they do when strong and healthy.

It is well to have the child properly examined by a doctor in any case.

Rupture of the bowel is caused by a strain which forces a piece of bowel out under the skin of the groin, where it forms a lump, which can often be pressed back again when the child is lying down at rest. In boys who need circumcising, the straining to pass their water frequently results in a rupture. No time should be

lost in consulting a doctor when such a swelling is noticed.

It is quite easily cured by an operation, or in very young children a 'truss' support may have to be worn.

DISORDERS OF RESPIRATION.

In India the sudden changes of temperature are a frequent cause of chills, which if they do not result in upsetting the digestion, cause severe *colds and coughs*. These should not be neglected, as worse results may follow. A mild purgative should first be given, and a hot mustard bath. The child should then be kept in bed for 24 hours on a light diet.

The prevention of such chills has already been described. It depends chiefly upon the wearing of flannel next to the skin, a cold sponge or shower bath daily after the warm bath, and a life lived in the fresh air. If a child is delicate and *prone* to take cold easily, its chest should be daily rubbed with Cod Liver Oil, back and front, and Cod Liver Oil should also be given him to drink in the cold months.

The *cough* accompanying cold in the head is easily controlled by glycerine or honey, mixed with a little lime juice and 10 drops of Ipecacuanha.

Cough accompanied by fever, rapid breathing, vomiting, or headache is serious, pointing to inflammation of some part of the respiratory tract. Bronchitis, pleurisy, or pneumonia begin thus, and a doctor should be called in therefore without delay.

Other forms of cough are the dry 'stomach' cough, worst at nights, often due to indigestion and constipation. A dose of Castor oil and light diet soon puts this right.

A rough dry *hoarse* cough, with a ringing sound in it, may end in croup.

Croup.—This disease only attacks young children, and is justly dreaded; for in its sudden onset and rapid development it is apt to be quickly fatal. What is generally known to mothers as 'croup' is really a convulsive spasm of the windpipe, and consists of a sudden attack of noisy breathing with loud 'brassy' dry cough. The breathing rapidly becomes laboured and difficult; owing to the spasmodic contraction air cannot enter, and the child makes vain attempts to breathe. Each time a 'crowing' inspiration is made, but air does not properly enter the passages, and the child dies suffocated.

As a rule, such an attack is preceded by an ordinary cold, accompanied by hoarseness and a rough dry cough, signs which should make a mother very watchful and suspicious of croup; but it may come on quite suddenly in the night while the child is sound asleep.

The first thing to do is to place the child in a very hot bath up to the chin for 10 or 15 minutes. It is then quickly dried and wrapped in warm blankets.

A teaspoonful of Ipecacuanha wine in a little hot water can then be given, and repeated till vomiting begins. The child may be kept very quiet, with a hot water bottle to keep it warm.

If the bowels were constipated, an injection of glycerine may be given at once.

After such an attack, a child should be kept in bed for three days at least, and be on very light diet.

If instantly treated in this way, the whole attack may be over in an hour or two, and there is little danger to life.

Though a doctor should be instantly sent for, the mother must not lose valuable time in waiting for him to arrive, but should put the child at once into the bath.

Another form of the same disease is "*Membranous Croup*" which also follows sometimes on a common cold. This is an inflammation resembling diphtheria, and fever is always present, with a hoarse croupy cough and much difficulty in breathing. Gradually the child gets exhausted by its efforts to breathe, but a fatal end does not come with such suddenness as in the spasmodic form.

The child must be kept in a warm moist air; a steam kettle with a little turpentine in the water should be kept constantly going near the bed. A dose of Castor oil, and the hot bath and other treatment (as above described) may be administered by the mother until the doctor arrives.

'*Child-crowing*,' and attacks of holding the breath, are not uncommon during the teething period, and may come on without any warning, especially when a nervous or delicate child is reproved or gets excited. The little one suddenly holds his breath for quite a long interval, becomes pale, and then at last draws in a deep breath with a crowing sound. Such an attack is not really dangerous, but is exhausting to the child. All causes of irritation should be removed, and the system built up with Cod Liver Oil and tonics. Often a sudden change in diet is useful, *e.g.*, if a child has been given boiled milk, it should be left off, and fresh milk, soups, raw meat juice, eggs and other suitable foods, may be substituted. Plunging the hands into cold water will also cut short an attack.

Medical advice should be sought if the attacks are frequent.

Quinsy (Inflammation of the tonsils) is not unknown under seven or eight years of age, but is commoner in older children, especially where there is rheumatism in the family. The tonsils can be seen, one on each side at the back of the throat, swollen and red, and swallowing is very painful. The child must keep in bed, have a dose of Castor oil, and very light milk diet. Steam inhalations with a little 'Friar's balsam' in the water give relief; they may be repeated every hour or so for ¼ of an hour. A flannel bandage wrung out in hot water may be applied to the neck.

As a result of repeated attacks of this kind, the tonsils may remain enlarged, and the child then suffers from constant cough, deafness, and debility; they should be cut out without loss of time.

Adenoids sometimes complicate enlarged tonsils. These are small hard growths behind the palate at the back of the throat, which close up the passages to the nose, and cause general debility and other evil results. The child looks unhealthy, easily catches cold, and keeps the mouth constantly open, being unable to breathe through the nose. Like the tonsils, such growths are best removed by a slight operation, which should not be delayed too long.

CHAPTER IX.

Tuberculosis—Fever and infectious complaints—Rheumatism—St. Vitus' dance—Night-terrors—Headache—Earache—Nose-bleeding—Chilblains—Styes—Night sweats—Swallowing foreign bodies—Burns and scalds—Wounds and bruises—Sprains—List of Drugs for Medicine Chest.

TUBERCULOSIS.—*Consumption.*

It is most important for a mother to be able to detect the earliest signs of this disease, which assumes many different forms in children, according to where the tuberculous material is deposited in the effort made by the system to rid itself of the poison. So we find the deposit commonly in the *lungs*, "phthisis," in the *glands* of the neck and elsewhere, in the *brain*, the *joints*, and in the *bones* ("white swelling.")

When in the lungs, the mother may suspect this disease if the child—in spite of good surroundings and all reasonable care—does not thrive, but remains pale and listless, difficult to rouse and interest.

A little later, there may be cough and slight fever, with quickened breathing, and the child is unwilling to make any exertion.

If the deposit is in other parts, there it will show itself by more obvious signs. If the glands of the abdomen are specially affected, the stomach of the child swells up, becomes painful and tender, while diarrhœa and rapid wasting come on.

If the glands in the neck or groin enlarge, they should be carefully watched, and painted daily with tincture of iodine. If they do not quickly subside, a doctor must be consulted without delay. Glands may enlarge from other causes, such as decaying teeth, sore throat, sores and irritation of the scalp, so that such

causes should always be looked for, and removed if possible.

As the tuberculous poison can be acquired very easily by living in bad surroundings, or from direct infection from others, we cannot be too careful in guarding the young from any contact with consumptive people, even when they have no inherited tendency to the disease.

Again, all delicate children, and those who are subject to colds and coughs, need special care, and should be always warmly but lightly clothed from the neck to the feet, and should not get overheated in play.

Their diet should contain much fat, cream, and butter; rich gravies and bacon fat should figure largely in their meals, and they should live and sleep in fresh air.

Such children, and those inheriting a tendency to consumption, or to scrofulous glands, should also take cod liver oil throughout the year.

FEVER AND INFECTIOUS COMPLAINTS.

It has already been pointed out at the beginning of this section, that after infancy the temperature of children will, from quite slight causes, rise rapidly to a high point and come down equally quickly, without causing much general disturbance of the system.

Appropriate treatment must, however, be used. If the fever is from eating indigestible food, a purgative (or a soap and water enema when there is sickness) is all that will be required. A sudden rise from malaria can best be met by cold water sponging, and a dose of castor oil, followed by quinine.

A doctor, however, should be called in to see any child with a continuous high temperature, which does not yield to a purgative and to quinine in full doses.

For *continuous fever* will imply the onset of one of the infectious diseases, (enteric, small-pox, measles,) or may be due to one of the many forms of tuberculosis, or to an abscess forming in some spot. In the last case, the child is sure to complain of pain in some part of the body.

The *infectious fevers* are usually ushered in by sudden vomiting, headache, fever and restlessness, until the special rash appears, when all these symptoms subside.

For any case of continuous fever, the bedroom should be emptied of all unnecessary furnishings, the child isolated, and all the precautions mentioned in Chapter I thoroughly carried out.

The child must be kept lying flat in bed in an airy room, and should be allowed only liquid food till the temperature becomes normal. Plenty of water and barley water, and fruit juice of various kinds may be given as drinks.

Each day the child should have a thorough wash with warm water and soap, all care being taken to avoid chills to the surface while the body is being washed. It is well also to cut the hair short.

The windows should *never be shut*, but red curtains may be draped over them to shade down the light, as this colour is most grateful to weak eyes.

The bed clothing should be very light, and frequently changed, while the position of the child in bed also needs to be altered from time to time, if he is unable to move himself.

In small-pox, warm oatmeal water should be used to bathe the body, which is thereafter well anointed with carbolic oil. If this is carried out daily, it is most beneficial in preventing the irritation and scarring of the skin.

In measles and enteric, one great danger is that bronchitis and pneumonia may suddenly complicate the original disease. These will be shown by a sudden rise of the fever, by hurried breathing and cough.

In pneumonia, enteric and diphtheria, the child must on no account be left for a moment, as there is danger that if he sits up in bed, paralysis of the heart and death may suddenly occur.

In diphtheria and scarlet fever, the throat is inflamed, and here the inhaling of steam to which "Friar's balsam" or Terebene has been added, will give the child relief.

The injection of a serum against diphtheria has saved many little lives, and this treatment, if carried out early enough, makes any other unnecessary in this disease.

In measles and small-pox, the eyes and ears both suffer severely, and need constantly to be watched and attended to, the moment any weakness or running discharge appears.

In all these diseases, too great care cannot be exercised in isolating not only the child, but the mother and all attendants, from the rest of the household and from the outside world. It must be remembered that these diseases might almost cease altogether if thoughtless and dangerous—(if unintentional)—carelessness in this matter were not so common. Infection is carried in the hair and skin as well as clothing, and it is therefore obviously impossible to perfectly disinfect the person if there is much intercommunication.

It is only fair to others that those attending on infectious cases should be entirely isolated for the time being.

Letters frequently carry infection, and servants do the same.

Appended is a table showing the differences between the various infective diseases, based upon Dr. Newsholme's observations.

Disease.	Rash and Fever.	Duration of infection.	Incubation.
Measles	Pimply mottled rash arranged in circles. First out on forehead neck and chest upon 4th day of the fever.	2—3 weeks, until all cough and shedding of skin cease.	10 days.
Smallpox	Groups of pimples first out on the face upon 3rd day of fever. They become blisters on 5th day of fever.	About 6 weeks, till the skin is quite healthy.	12—14 days.
Scarlet Fever	Bright red raised spots first on the chest upon 2nd day of fever, and sore throat.	8 weeks, until all peeling of skin and discharges cease.	2—5 days.
Mumps	Swollen glands in the neck with fever—begin and subside together.	4 weeks from the commencement ...	2—3 weeks.
Diphtheria	Fever and sore throat commence together. Eruption of white membrane in throat on 2nd or 3rd day.	2 months, when all discharges cease ...	2—5 days.
Whooping cough	Fever with spasmodic cough and vomiting	At least 8 weeks from the commencement, or till all cough has ceased.	7—14 days.

RHEUMATISM.

This disease is very apt to be overlooked in children, but should always be suspected as the cause of "growing pains," headaches, quinsy and sore-throats, especially if these affections frequently recur. As even with these slight manifestations, the rheumatic poison is apt to permanently injure the heart, the mother must see that these complaints of her child receive due attention.

Acute rheumatism shows itself by a sudden rise of temperature, with pain and swelling in one or all the joints of the body. In that case, the child should be kept quiet and warm in bed, and no time should be lost in summoning a doctor.

A child with such tendencies should be clothed with woollen garments all the year round, and the diet should consist largely of milk, fruit, vegetables, and light meat. A dry warm climate in a non-malarious district is essential.

ST. VITUS' DANCE.—*Chorea.*

The child inheriting a tendency to rheumatism, is very liable also to the twitchings of the body which have given the name to this complaint.

Nervous children, and those who are highly intelligent, and apt to over-strain themselves in schools, are most commonly affected.

The child is first noticed to be fidgetty and have irregular jerky movements of the face and limbs. If neglected, these twitchings become violent and general, while the child becomes weak and exhausted.

At the very first sign of anything of the kind, a child should be put to bed and kept absolutely quiet, while

a doctor should always be summoned. The child should be fed frequently with light nutritious food, and be surrounded with fresh air. After such an attack, a year or two of 'running wild' in the country, without lessons or other strain, is a necessity. Daily the body should be sponged over with cold salt water after the warm bath.

NIGHT-TERRORS.—*Screaming fits.*

A child who is nervous and delicate, or over-pressed with lessons, will sometimes suffer from nightmare, and sudden attacks of fear, which wake him up out of sound sleep, screaming with terror. Generally he is restless or sleepless the rest of the night. Indigestion, and the presence of 'adenoids'—or growths at the back of the throat—may be the cause of such attacks.

Such a child should live in congenial surroundings, and have no strain of lessons, etc., to worry him. The last meal should be a light supper, taken at 5 P.M., and the warm bath should be taken always at bed time. To soothe him after an attack, the child's face and hands may be bathed with cold water, and a drink of milk and water should be given, or a sweetmeat, chocolate or butterscotch for choice.

HEADACHE.

If a child suffers constantly from headaches, which are accompanied by sleeplessness and sudden screaming fits, no time should be lost in sending for the doctor.

Usually however, children's headaches are only a symptom of some complaint of the eye, ear, nose, liver or stomach, or of a rheumatic tendency. Such causes need treatment, rather than the headache itself.

Rest in a dark room, and a dose of castor oil, is usually all that is required; but for a 'sun headache,' iced cloths to the head, and a dose of 2—3 grains of antipyrin are also useful.

EARACHE.

Acute pain in the ear results from inflammation, which causes restlessness, headache, and tenderness about the ear. Often the pain can only be relieved when the abscess bursts and discharges matter, a very common ending to earache in tuberculous children.

Hot fomentations and poultices to the ear, and syringing it gently with hot boracic acid lotion, will relieve the pain. A few drops of glycerine borax containing a drop of "laudanum," may be warmed in a tea spoon and dropped in, after syringing and drying the ear.

A doctor should always be called in if earache persists for more than a day or two.

NOSE-BLEEDING.

This is often a natural relief to the system, and should not cause alarm unless frequently repeated in delicate children. If very profuse, the child should be laid upon his back, with ice to the forehead and back of the neck. A doctor may have to be called if the bleeding continues in spite of rest and the application of ice.

CHILBLAINS.

The best preventive of these painful swellings of the fingers and toes, is abundance of good nourishing food, and a life lived in the open air, with plenty of exercise. The feet and hands should be clothed with

wool, and light, well fitting, soft boots worn. These may be lined with flannel or jaeger wool.

Twice a day the feet and hands may be rubbed with one ounce of glycerine of alum to which two teaspoonfuls of best brandy have been added.

A warm foot bath may be taken twice a day, morning and night.

When a chilbain "breaks," it must be treated like any other wound, and not exposed to the air. It may be antiseptically dressed with lint and hazeline cream, or boracic ointment, and carefully bandaged up until healed.

Tonics, and plenty of light nourishing food and fresh milk, are required by the child who suffers from this painful affection.

STYES.

Boils on the eyelid are called styes, and, like boils in other parts of the body, they are a sign that the blood is in a bad condition.

The eye should be bathed with hot boracic acid lotion several times a day, till the boil has come to ahead. The 'stye' is then pricked with a fine needle, previously boiled for a few minutes, and the drop of 'matter' squeezed out. The fomentation can then be repeated. Tonics should be given for some weeks to these children.

NIGHT SWEATS.

The strong and healthy child does not perspire too profusely at any time, except with very violent exercise. A skin constantly wet shows a tendency to rickets in the first two years of life, and later may be

a sign of consumption. Some delicate children habitually suffer from perspiration, particularly during sleep, or on first waking up in the morning.

The child should be thoroughly examined by the doctor.

Meanwhile, care should be taken in always changing the clothing when wet. Cotton clothing should not be worn. If a child is hygienically clothed, *i.e.*, wears only three garments of wool, and a flannel binder over his combination garments, there will be less likelihood of too profuse perspirations, and the moisture will rapidly evaporate through the wool.

After the evening bath, the body may be sponged over rapidly with tepid water, containing a teaspoonful each of borax and bicarbonate of soda to each pint of water.

Profuse local perspirations of the hands or feet, can be controlled by frequent bathing with tepid water containing one teaspoonful of tincture of belladonna to the pint.

Children who perspire at night should always be well fed, and given a large cup of hot milk in bed, the last thing at night.

SWALLOWING FOREIGN BODIES.

Such accidents happen very suddenly. If the substance sticks at the top of the throat, turn the child instantly topsy-turvy with his heels in the air, and pat the back. Put the finger also to the back of the throat, and try to dislodge the article, or at least excite coughing and vomiting which may expel it.

If not sharp or pointed, the thing swallowed may pass harmlessly into the stomach. Here aperients

must not be given, but full meals of porridge, brown bread and vegetables, which will aid in the harmless expulsion of the articles from the stomach and bowels. A careful watch for it should be kept.

Children occasionally *choke* when eating too fast, or putting large pieces of food in their mouths. Any child who habitually chokes over meals without such reason, should be carefully examined by a doctor, as this is sometimes a sign of serious disease.

BURNS AND SCALDS.

Even a slight burn may cause extreme collapse in a child, and consequently the first thing to do is to put him to bed and administer brandy and hot milk, or hot coffee.

Next, the clothing must be cut off from the body, if necessary soaking the part adherent to the wound with warm water to loosen it.

Then the part affected is at once to be covered over with clean linen rags or handkerchiefs, on to which any clean ointment or any greasy substance (vaseline, boracic or vinolia cream, or even *butter*) is thickly spread. Plenty of cotton should be spread over the dressing to exclude the air, and a bandage to keep all in place must be applied.

The child should on no account be allowed to sit up, and there should be hot water bottles in the bed.

Swallowing boiling water causes severe symptoms; even if it is at once rejected from the mouth, the back of the throat may be severely scalded.

The child must be kept absolutely quiet in bed, and the doctor instantly sent for. An ice-bag—or pieces of ice in a cloth—should be applied to the neck in front

and to the sides, and ice may be given to suck. Iced liquid food in small quantities may be given by the mouth if the child can swallow, but nutrient enemas are usually required for a few days.

WOUNDS AND BRUISES.

These are best treated by washing the part injured with hot boracic acid lotion, of which a clean "compress" should also be applied. A large wound will need to be kept at rest, and some pressure with a clean hot sponge of lint or rag may be needed to control the bleeding until a doctor is procured. Small wounds may be painted over with '*Collodion*.'

SPRAINS.

A sprain of a joint should never be neglected. Rest of the part is at first needed, and an ice-cold compress, or an ice-bag, should be kept continuously over the injured joint.

Sometimes if cold is not well borne, very hot fomentations have to be used instead. The limb may be soaked in a bath of hot water for an hour or two, and then covered over with hot flannels, and oiled silk bandaged over them.

List of Drugs for Medicine Chest.

Drugs administered by the mouth.

Castor oil, plain and in emulsion
Compound rhubarb powder.
Liquid magnesia.
Citrate of soda.
Bicarbonate of soda.
Bromide of potassium.
Quinine sulphate.
Ipecacuanha wine.
Dover's powder.
Dill water.
Lime water.
Olive oil.

For external application.

Oxide of zinc.
Boracic acid.
Mustard
Glycerine of borax.
Glycerine of tannic acid
Tincture of iodine.
Lotion of perchloride of mercury 1 in 2,000.
Lotion of Lead acetate.
Glycerine.
Collodion.
Peptonizing powders.
Rennet (for whey).

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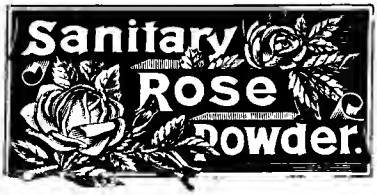

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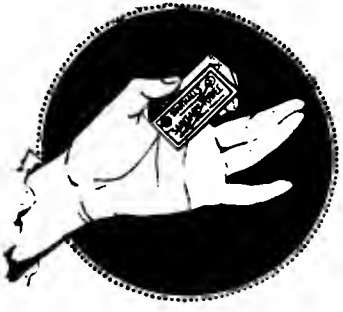

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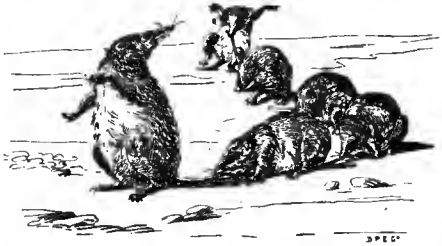

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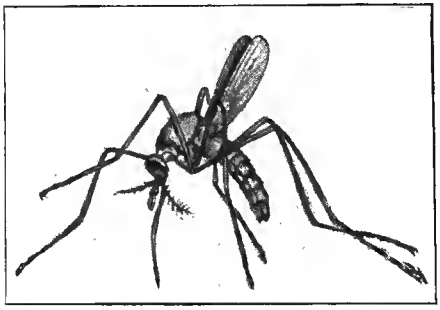

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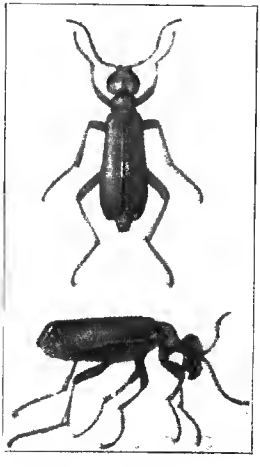

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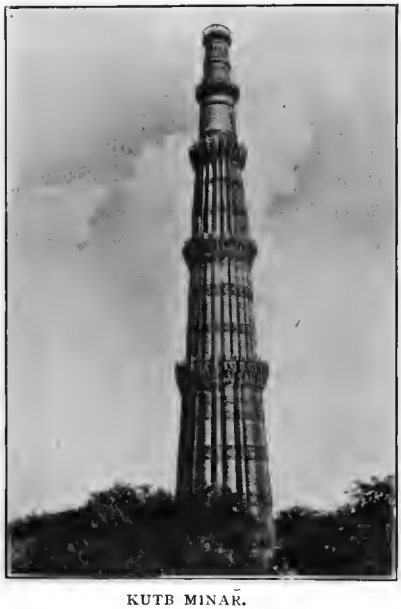

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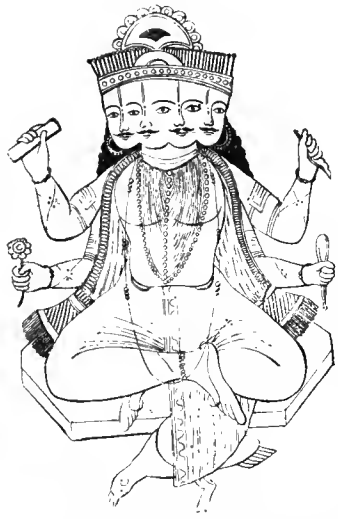

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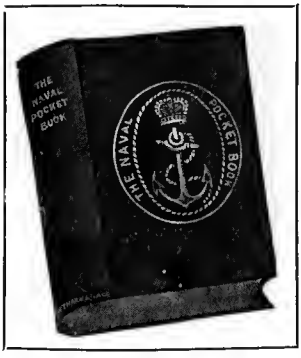

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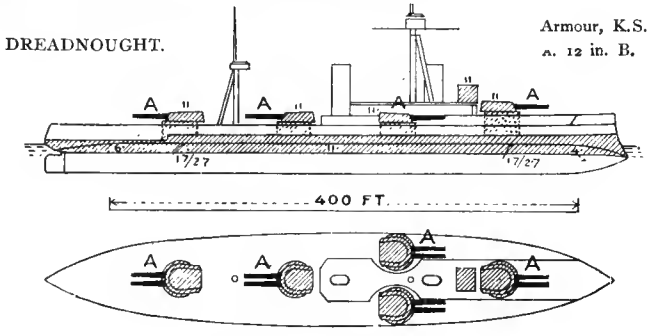

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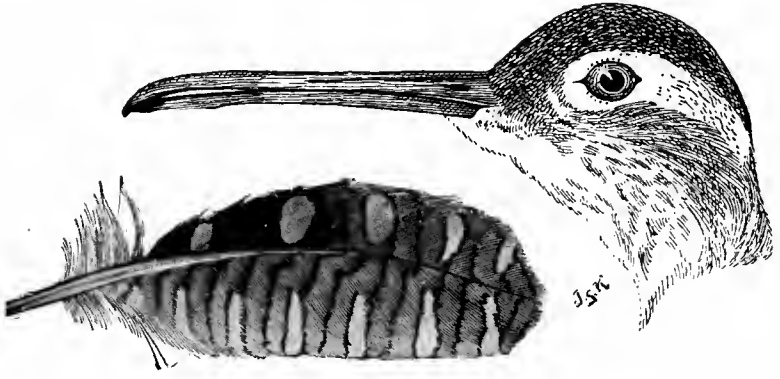

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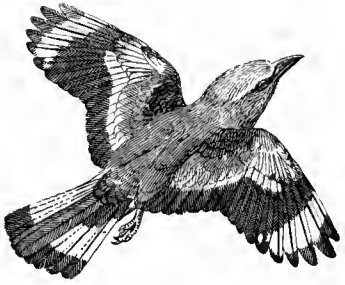

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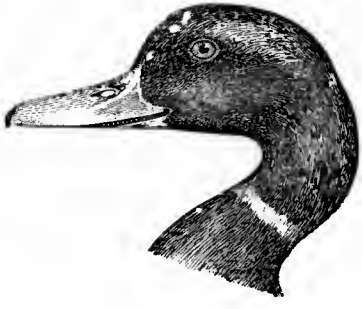

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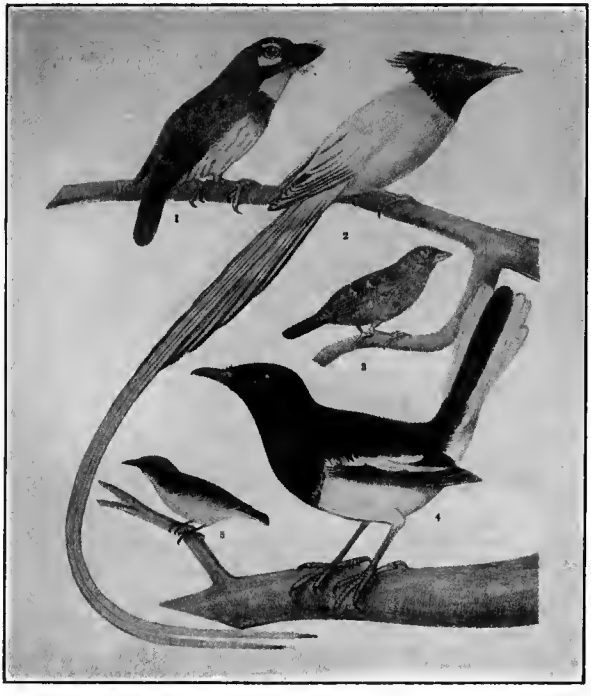

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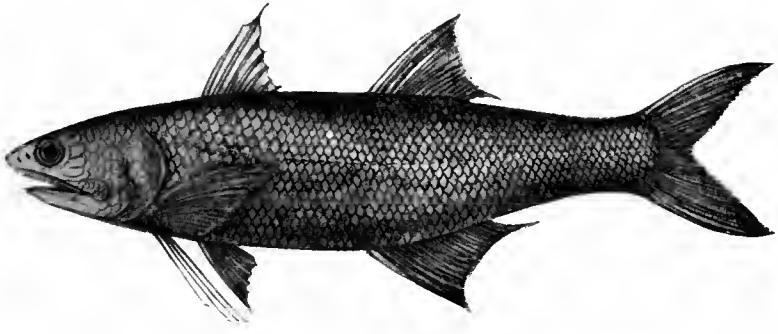

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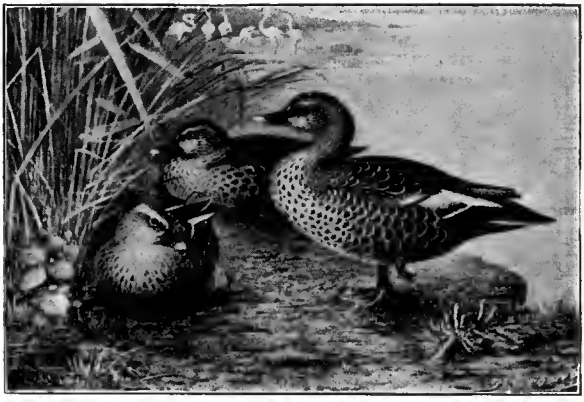

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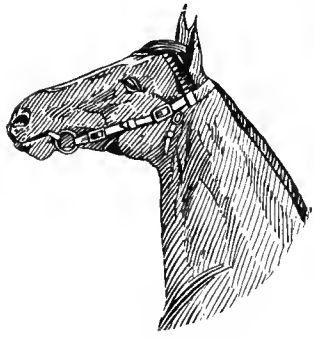

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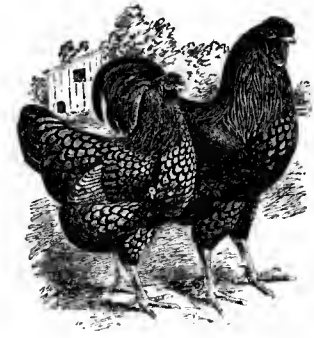

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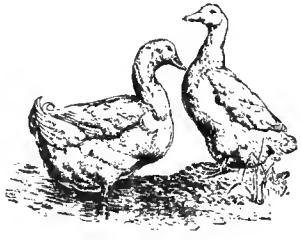

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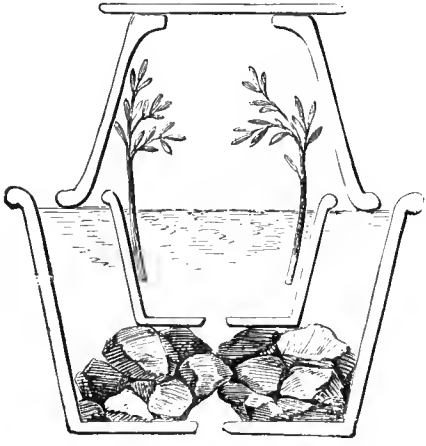

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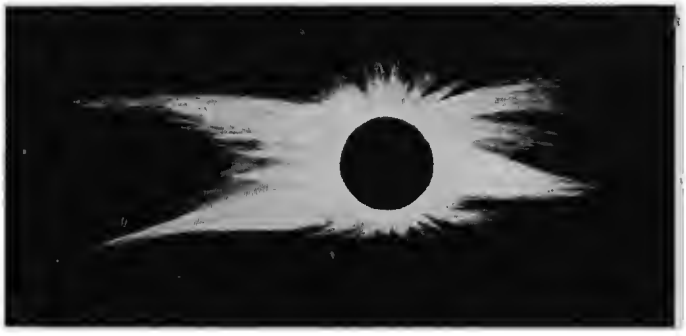

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